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WILDLIFE IN NORTH CAROLINA

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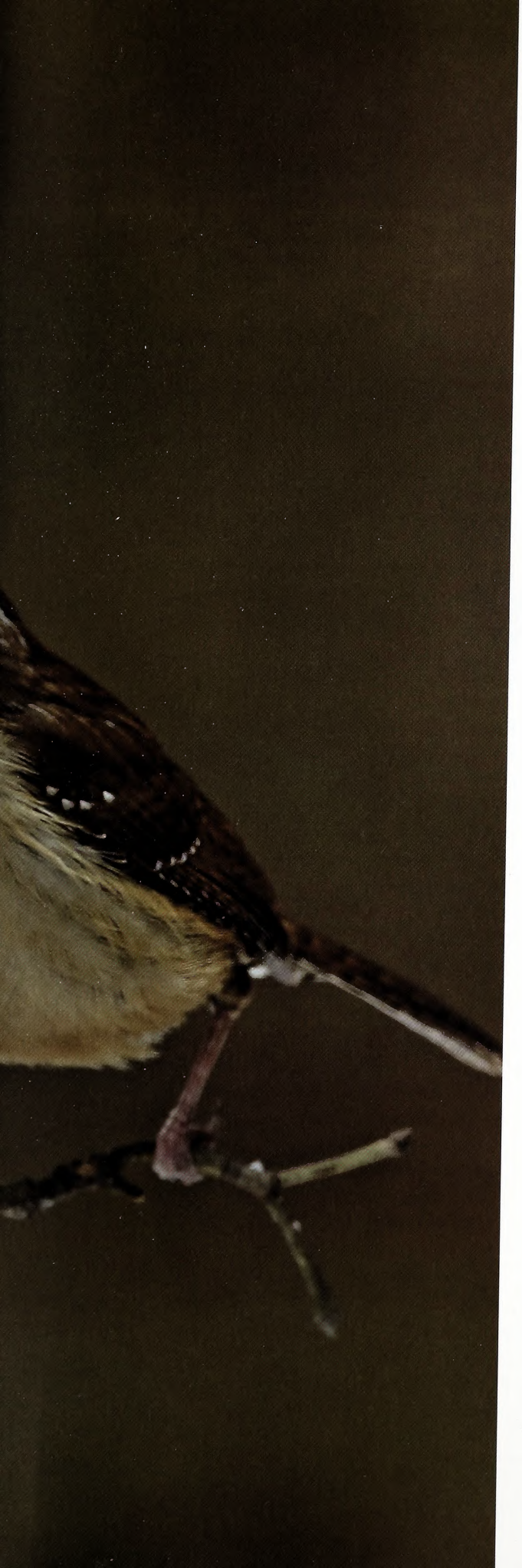
WILDLIFE IN NORTH CAROLINA
2013 PHOTO COMPETITION

A miniature snowman with black oil sunflower seeds for eyes and twigs for arms became a bird feeder for this opportunistic wren in Jacksonville. **PHOTOGRAPH BY JOHN ALTHOUSE.**



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WILDLIFE IN NORTH CAROLINA

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Cover: A canopy of live oak trees at Fort Fisher provided the scene for this year's Grand Prize winner, Paul Malcolm of Garner.

Wildlife in North Carolina is the official educational publication of the North Carolina Wildlife Resources Commission. It is dedicated to the sound conservation of North Carolina's wildlife and other interrelated natural resources and also to the environment we share with them.

EDITOR'S NOTE

For readers, times are changing. The rapid growth of tablets, particularly iPads and Kindles, and the concomitant increase in the volume of books and periodicals that are available digitally is making the printed page, although still beautiful, seem a bit matronly.

About a year ago I bought an iPad and have been amazed at the difference it has made. I read more and I read better on a device than I do with a printed book or magazine. For most of my life I have been surrounded by books, books on shelves, books in stacks, books everywhere.

Granted, looking at the volumes lined up on my tablet is not as pleasant an experience as gazing at books on shelves, at Ray Bergman and Havilah Babcock and Thomas McGuane. There are, however, obvious conveniences. I can carry these digital books and magazines anywhere, plus many old volumes on fly-fishing and hunting are available online for free.

Yet, printed books and magazines have their own unique pleasures. For the past couple of weeks, I've been reading a hard copy of the latest *Gray's Sporting Journal*. I've read *Gray's* since it began and cherish the look and feel and contents of each copy. Soon, however, I'll switch to a digital subscription.

One night after reading, I laid the magazine on the sofa beside me. I picked it up again and became lost in the Chet Reneson cover painting. This particular watercolor, one of many by Reneson that have adorned *Gray's* covers, is entitled "Long Point." It's easy to fall into the look and feel of the painting. A lone hunter, dressed in brown, is poling his boat into a tiny cut behind sparse vegetation. Snow litters the ground, the wind is up and waves are breaking on the big water in front of him. He stares at the yellowish-white sky, startled by the canvasbacks that have already begun to pitch into his decoys. A blocky Lab stands alert, also staring at the birds. The hunter's shotgun is nowhere to be seen, and he won't be shooting any of these birds.

Some people do not like the ambiguity of watercolor, where nothing is clearly defined, yet everything is evoked. It's a feeling, not a fact. I considered the painting for a good half an hour, lost in the cold and the birds and the water. I'm wondering if that's something I'll ever be able to do with a tablet.

Jim Wilson

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WILDLIFE IN NORTH CAROLINA

JANUARY • FEBRUARY 2014 VOLUME 78, NUMBER 1

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CAROLINA THUMB-SPLITTERS

The Eyes Have It

Coincidences are so wonderful. Luckily, I just subscribed again to your magazine, to enter the photo contest, and was so delighted in the first issue to discover the great article about the mantis shrimp by John Cooper. Recently, I was so enthralled to see a great show on television about a cousin of this critter, the peacock mantis shrimp of Indonesia.

What phenomenal creatures, and I had no idea we have them right off the coast of North Carolina. Sure hope I never run into one, and it split my thumb open! I need that thumb to hold my camera, so I can continuously hunt for images for your contest. And I will never again say someone has an eagle eye ... it will be, "They have the eyes of a mantis shrimp!" Thanks for such a wonderful article.

Nita Whitfield
Durham

She-Crab Complaints

We have enjoyed *Wildlife in North Carolina* for a long time. However, I was disappointed with a photo in the newest edition (November–December). The picture on the opening page shows a female cooked crab (a "capitol dome" style bottom plate). I realize that North Carolina is not among the states that prohibit the catching of female blue crabs, but, with declining crab numbers in our state it does not seem wise to have a female crab featured.

Even though I'm being "crabby" about this crab issue, I feel better voicing an opinion. I love crab feasts (serving male crabs). I'm hoping that keeping the females in the water will allow us to have an abundance of steamed crabs in the future.

Bonnie Estes
Cary

The photo on the inside cover of the November–December *Wildlife in North Carolina* issue shows cooked female crabs. I know it is not illegal to harvest female crabs, but I always throw them back in hopes that they will eventually lay future generations of blue crabs. Please comment.

Jay Requarth
Winston-Salem

Jim Wilson: The status of blue crabs, in the most recent report from the N.C. Division of Marine Fisheries, is listed as one of "concern." That designation is based on reduced landings below historical levels. A 2011 stock assessment found that blue crabs are not overfished, but could not determine whether overfishing was occurring. For much of the year (Sept. 1 – April 30) larger female crabs — over 6 ¾ inches from tip to tip of the carapace — may not be harvested recreationally. That regulation was put in place to protect the larger females.

Eastern N.C. Fishing Legends

I read with interest the letter written by George Clark about antique lures in the November–December issue. If there is anyone with a fishing legacy in North Carolina it is indeed George Clark or John Murchison. Both of their fathers and kin wrote the book on surf and pond fishing in southeastern North Carolina. They left us with the technicalities, the craft and the sportsmanship that set the standards for what we know as sport fishing today.

The fathers and kin of George and John and old timers like Ernest Peschau, Hall Waters and others indeed showed a young, dyed-in-the-wool Wrightsville Sounder on his morning lifeguard rounds, the way to catch fish and be a gentleman at the same time. Fishing Orton Pond as a teenager with Dr. Murchison carried with it a tackle box of memories that last and last, giving me fodder to chew on for the remaining years of my life. Would that someone would write the history of fishing in New Hanover County! Those old gentlemen would most certainly be at the root of it! Editor, can you persuade George Clark to write?

Jerry Partrick
Fairfield, Va.

Outdoor Preservation

I have been a subscriber of this publication for about 12 years, and I wish to express my thanks for the wonderful layout of wildlife stories and pictures of various places in North Carolina. The articles are informative and educational, and I have a deeper appreciation and respect for our wildlife officers and those who continue to keep the North Carolina outdoors preserved for future generations.

Annually, I make a point to visit your booth and display at the North Carolina State Fair, and the employees are friendly and willing to answer any question I have, or they will take a few minutes to have a friendly chat. Keep up the great work. I am a 2013 graduate of Appalachian State University.

Matthew Weaver
Salisbury

We want Your Feedback

Do you have a question or comment about content in *Wildlife in North Carolina*? Send us an e-mail at letters@ncwildlife.org.

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WILDLIFE IN NORTH CAROLINA 2013 PHOTO COMPETITION

"I think that I shall never see a poem lovely as a tree." "Trees," Joyce Kilmer.

It may not be a poem, but Paul Malcolm's picture of a tree was deemed most lovely in the 2013 Wildlife in North Carolina Photo Competition. It beat out over 1,300 other entries to take top prize. Malcolm also proved that one doesn't have to be a grizzled photography veteran to win.

"I fell in love with photography in 2005 when I got my first digital camera," said Malcolm, a Garner resident. "I read everything I could on the subject because I wanted to improve my skills. Over the years I have gone from one camera to the next until I finally have the camera of my dreams. Well, almost."

Malcolm plays viola in the North Carolina Symphony, and his wife, Lisa, is also a musician. "We travel around North Carolina playing concerts from Manteo to Murphy," he said. "I see a lot of this state, and I usually take my camera when we have a little free time between concerts. North Carolina is a beautiful state and I never fail to find something to photograph."

Malcolm, 58, said that he has four adult daughters who are more interested in music than photography, but they do appreciate his pictures. Previously, Malcolm won the Wild Landscapes category in 2010. "I think a good photographer has to be creative," Malcolm said. "When I take a picture, I am not documenting a scene; I am capturing a mood or feeling. I am looking for some creative way to express what I see and feel about the subject. Music and photography are both creative passions. In a concert I get involved emotionally. In photography, I get involved simply because I enjoy taking pictures!"

Marsha Tillett, art director for *Wildlife in North Carolina* and a judge for the contest, weighed in on the winner. "Each year the *Wildlife in North Carolina* magazine staff really enjoys going through all the images that people submit for the competition," said Tillett. "We have so many great photographers and I love looking at our wonderful state through their lenses. This year's grand prize winner used such an interesting perspective to photograph the oak trees. The colors and angle really caught all of the judges' attentions, and the sunburst peaking through the tree canopy provides a great focal point."

This was the second year the competition was open only to subscribers (for adults), and we had 1,235 submissions in the following categories: Animal Behavior, 176; Birds, 223; Invertebrates, 179; Mammals, 140; Outdoor Recreation, 102; Reptiles & Amphibians, 125; Wild Landscapes, 160; Wild Plants, 126; Youth 12 & Under, 31; and Youth 13–17, 51. It should be noted that two entries with a chance to place in their categories were disqualified for obvious electronic manipulation.

The four other judges for the contest were staff graphic designers Katie Parland and Bryant Cole and staff photographer Melissa McGaw. Mike Dunn, retired senior manager of outreach at the N.C. Museum of Natural History, rounded out the judging crew. All winning photographs may be seen on exhibit through March at the N.C. Museum of Natural Sciences in Raleigh.

–Mike Zlotnicki

Paul Malcolm, Garner
Oak trees, Fort Fisher

This photo was taken under the live oak trees at the Fort Fisher historic site near Wilmington. It took me several attempts to line up the sun partially behind the tree limbs so as to get the sunburst. Also, trying to do anything on a tripod with the camera pointing straight up is always difficult without an articulating LCD screen. I think it adds an additional element of interest in a photograph to get a sunburst in the shot, so in the future I will forget the tripod and just lie on the ground with the camera up to my eye and line things up that way.

(Canon 5D Mark III, Canon f/2.8L II 16–35mm at 16mm, ISO 100, f/22, 1/13 of a second)

BIRDS **FIRST PLACE**

Charles English, Wilmington
Belted kingfisher, Wrightsville Beach

The kingfisher was taken at a creek close to Wrightsville Beach. I have been here many times photographing the kingfisher but today it was raining and overcast and the light was constant. I got in the blind out of the rain about 8 a.m. I knew it would land on the stick around 8:30, as it does about the same time every day. Sure enough, he landed on the stick. I looked at my watch and said to myself, "you're a little late today, bud." It was 8:35 a.m.

(Canon 1D IV, 500mm f/4 with a 1.4 teleconverter, ISO 400, f/6.3, 1/400 of a second, manual mode)

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BIRDS **SECOND PLACE**

Monte Combs, Wilkesboro

Ruby-throated hummingbird, Wilkesboro

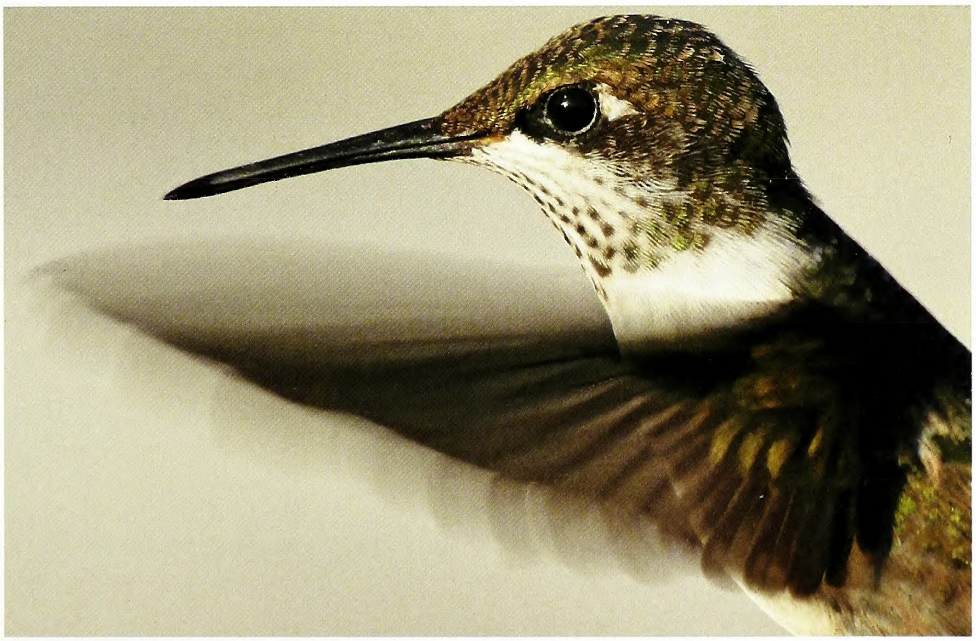
This young male ruby-throated hummingbird flew into one of our windows in our log house while chasing and/or fighting another hummer. I picked it up and placed it on one of our logs on a corner. Fortunately it was only dazed and flew off in about 15 minutes. I just wish that my friend, Dwayne Martin from Riverbend Park in Catawba County (one of two official hummingbird banders in North Carolina) could have banded the little fellow so I might have been able to see if he made it back this year.

(Canon 5D, Canon 100mm Macro, ISO 400, f/2.8, 1/60 of a second)

BIRDS **THIRD PLACE**

Mickey Moten, Kings Mountain

Ruby-throated hummingbird, Kings Mountain



Hummingbirds are such amazing creatures and among my favorite subjects to photograph. For this photo, I was staying as motionless as possible near one of my feeders. As the female ruby-throated hummingbird approached and hovered, I got this shot from roughly 4 to 5 feet away. The background in the photo was my driveway.

(Panasonic FZ-100, 108mm (600mm equivalent), ISO 100, f/5.2, 1/320 of a second, handheld in natural light)

MAMMALS **FIRST PLACE**

Tyler Bailey, Raleigh
Squirrel close-up, Grandfather Mountain

Whilst photographing birds from the viewing platform above the Grandfather Mountain Nature Museum, this squirrel climbed onto the railing nearby to munch on some sunflower kernels. Completely indifferent to everything but his food, I was able to get close to him and capture this image.

(Nikon D5100, Nikon 55–200mm at 200mm, ISO 400, f/5.6, 1/125 of a second)

MAMMALS **SECOND PLACE**

Jim Ruff, Blowing Rock
White-tailed deer, near Blowing Rock

Four bucks and two does are silhouetted in the early morning glow of a foggy September morning on the Blue Ridge Parkway near Blowing Rock. There were actually five bucks in the field but the shy fifth one didn't want to be included in the photo.

(Canon 7D, 500mm f/4 lens, ISO 400, f/4.5, 1/125 of a second, Gitzo tripod with Wimberley Gimbal head)

MAMMALS **THIRD PLACE**

Gene Furr, Raleigh
Gray fox, Brunswick County

I was traveling in Brunswick County during early spring when I crossed a bridge and noticed a gray fox in a tree to my right. He was so focused on searching for prey and he didn't notice me. It gave me enough time to capture his image. He still had his beautiful winter coat of gray and red. The lighting was a soft, diffused day which gave me beautiful soft colors.

(Nikon D300, 300mm with a 1.4 extender at 420mm, ISO 440, f/5.6, 1/250 of a second)

REPTILES & AMPHIBIANS **FIRST PLACE**

Joe Congleton, Clayton
Anole, Clayton

I just happened to be near the hose on the side of the house and saw this little green "lizard" (I did not know it was technically called an anole until later). I thought he was interesting to look at, and since he did not seem too shy I thought I had a chance at getting a picture of him for fun. At the time I never thought it might turn out to be a winning photo!

(Nikon Coolpix 500, 6.7mm, ISO 180, f/4, 1/320, Scene Mode: Close Up)

REPTILES & AMPHIBIANS
SECOND PLACE

Charles English, Wilmington
Yellowbelly slider, Wilmington

The image was taken at Airlie Gardens. While I was waiting for some flight shots I looked down and saw this turtle stick his head up out of the water. The water was milk glass and I noticed how the beautiful color was being reflected from the turtle and the sky.

(Canon 1D IV, 300mm/2.8 with a 1.4 teleconverter, ISO 800, f/5, 1/2,000 of a second)

REPTILES & AMPHIBIANS
THIRD PLACE

Catherine McEntee, Hampstead
Anole, Hampstead

I took this photo on a balmy day in early April. I had just put some mealworms in a dish for some Carolina wrens and set the container of worms on a table on the porch while I did some gardening. I noticed this very hungry green anole poking the clear container trying unsuccessfully to get a worm. I let a couple worms out of the container, and I got the shot.

(Nikon D7100, Sigma 150mm macro lens, ISO 1000, f/8, 1/1,000 of a second)

INVERTEBRATES **FIRST PLACE**

Stephen Atkins, Weaverville
Virginia tiger moth, Weaverville

My kids were asking me a lot about moths and butterflies this summer. We left the porch lights on overnight a few nights in a row to see what kinds would appear and we would take pictures in the morning and try and identify them with a field guide. I was able to answer most of the typical questions you would expect from a 4- and 7- year old: "What do the caterpillars eat?" "What's the difference between moths and butterflies?" Then my daughter stumped me. "Daddy," she asked, "if moths like to fly around lights so much why don't they just come out in the daytime?"

(Nikon D800 Sigma 150mm 2.8 macro lens, ISO 800, f/22, 1/60 of a second, manual exposure, manual focus)

INVERTEBRATES **SECOND PLACE**

Karen Doody, Morehead City
Halloween pennant on reed, Morehead City

I love it when I go out to shoot something specific and nature offers up something entirely unexpected. My goal that morning was to photograph some flowering plants I had seen blooming in a storm water retention pond nearby. When I approached the edge of the bank I was amazed at the sheer number and variety of dragonflies all around me. I quickly ran back to the car, switched lenses and started shooting. The light was soft and the pond vegetation offered a perfect backdrop to these jeweled beauties.

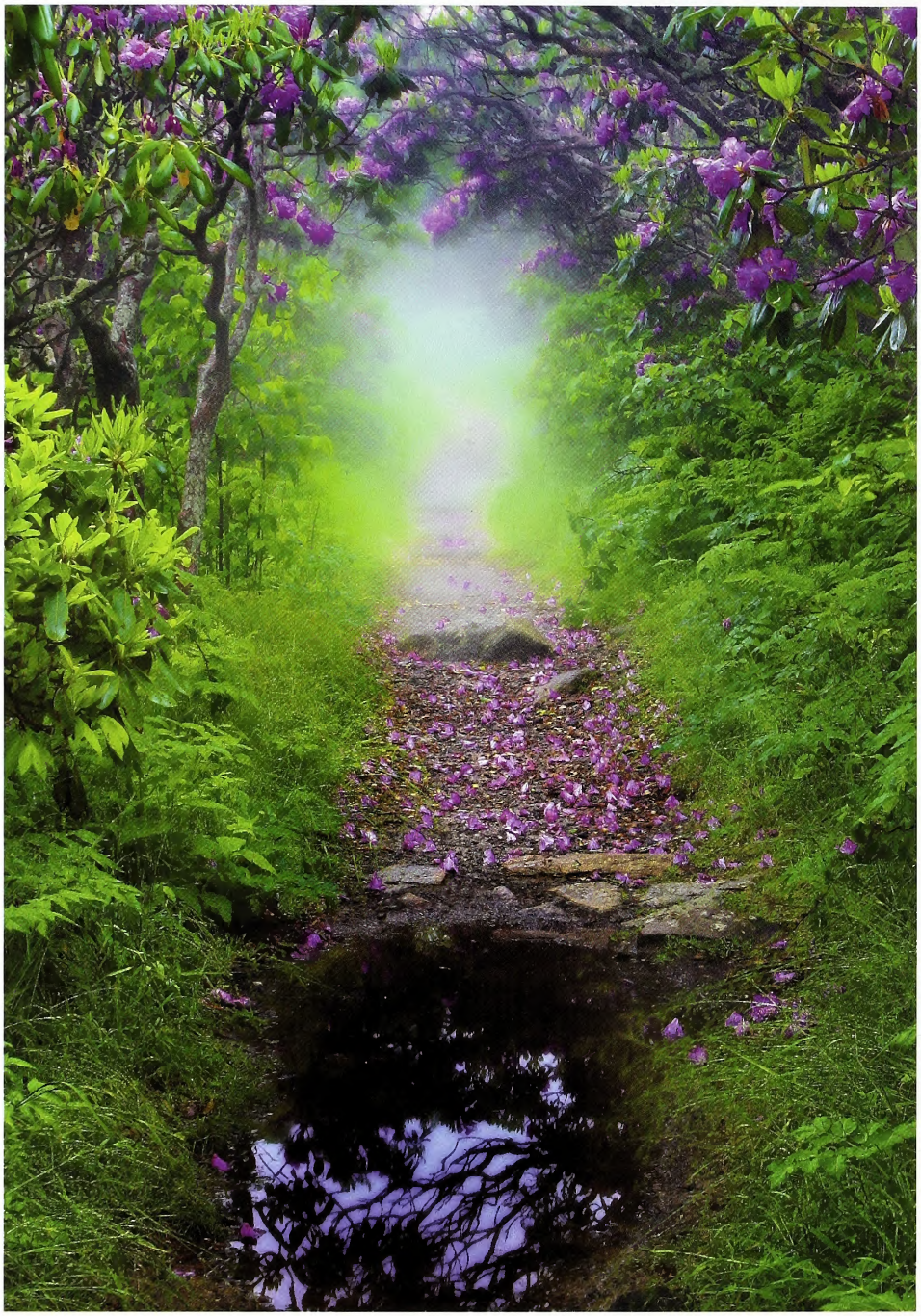
(Nikon D600, Nikkor 70–200mm f/2.8 +2.0 teleconverter (shot at 400mm), ISO 200, f/5.6, 1/160 of a second)

INVERTEBRATES **THIRD PLACE**

Wick Smith, Fayetteville
Starfish and skate egg cases, Cape Hatteras

This image was taken at Cape Point—Cape Hatteras. These starfish and skate egg cases were washed up in the surf. It made for a great foreground with the incoming tide. Being January, it was very cold on the beach. Getting the shot as the waves rolled in was tough. Just after the shutter closed on each attempted shot, I had to snatch the camera and tripod away before getting wet. I wanted to get the wave action washing in to give the image a surreal appearance.

(Canon 5D II, Canon 24mm T/SE lens, ISO 160, f/11, 1.3 second exposure, variable neutral density filter to slow down the shutter speed)



WILD PLANTS **FIRST PLACE**

Jim Ruff, Blowing Rock
Rhododendron, Blue Ridge Parkway

This image was taken late May on the Craggy Pinnacle Trail on the Blue Ridge Parkway. I wanted to capture the beauty of that trail when the Catawba rhododendrons were actually near or past peak. On my third visit, I arrived in late afternoon just as a major thunderstorm was passing through the mountains. After a three-hour wait and as it was nearing darkness, I went back up the trail: blooms on the bushes, fallen petals on the path, fog and a reflecting pool as a bonus. In nature photography, patience is a plus.

(Canon 7D, 24-105 mm f/4 lens at 47 mm, ISO 100, f/16, 10 second exposure, Gitzo tripod)

WILD PLANTS
SECOND PLACE

John Althouse, Jacksonville
Toad flax, Swansboro

This scene was taken in Swansboro. I enjoy photographing flowers in this manner for the shallow depth of field which enhances the subject.

(Canon 5D Mark III, Canon EF 300mm/2.8, ISO 200, f/2.8, 1/1,000 of a second)

WILD PLANTS
THIRD PLACE

Sharon Canter, High Point
Bald cypress trees, Lake Mattamuskeet

Early morning light accentuates the bald cypress trees and especially their "knees" along the shore of Lake Mattamuskeet near Fairfield. I shot this image in December while standing in the mud in about one foot of water. I was hoping to "smooth the water a bit" with the longer exposure.

(Nikon D300s, Nikkor 18–200mm, ISO 100, f/22, 1/6 of a second)

OUTDOOR RECREATION **FIRST PLACE**

Ed Ziegler, Raleigh

Beach at sunrise, Emerald Isle

When at the beach, I make it a point to get out around 45 minutes before sunrise to greet the day, and attempt to document what I see with a camera, usually from the deck of the beach house. This particular morning produced some glorious colors and offered a unique opportunity. Three features make this photo special to me. The person fishing was using a lantern on the beach. She somehow managed to stay still for 15 seconds. Lastly, no one else entered the frame. All quite rare. The result was exactly what I hoped to achieve.

(Canon 1D Mark III, Canon EF 70–200mm f/2.8L at 200mm, ISO 50, f/20, 1/15 of a second)

OUTDOOR RECREATION
SECOND PLACE

Ashley McNeely, Winston-Salem
Blue Ridge campsite, Rich Mountain

The balds along the Blue Ridge Mountains are very special places. I took this photo on a short overnight camping trip this past spring to the Rich Mountain bald outside of Boone. I had scouted out a camp spot down below the bald a couple of days earlier, but when I got to the top and the winds were unusually calm I decided to camp out on the exposed field. I was able to set up camp just before the sun set and capture some great shots of the sun's colorful descent.

(Canon EOS Rebel T3i, Tokina 11–16mm 4/2.8 at 11mm, ISO: 100, f/5.6, 1/125 of a second)

OUTDOOR RECREATION
THIRD PLACE

Kirk Pullen, Warsaw
Surf photographers, Buxton

I took this shot on Thanksgiving weekend of 2012 when I went to watch the massive 15-foot waves at the Cape Hatteras Lighthouse in Buxton. I stood there for about half an hour just mesmerized by how big the waves really were and that surfers were taking them on. I then realized the sun was setting and was amazed at how many people watching on the beach were taking pictures. It is rare to see surf this size and this many people with 300–400mm lenses taking pictures of the surf. I found a great angle and composed the shot so the lighthouse was between them.

(Nikon D700, 70–200mm VRII lens at 135mm, ISO 250, f/20, 1/640 of a second)

WILD LANDSCAPES **FIRST PLACE**

Jim Ruff, Blowing Rock
Price Lake, Blue Ridge Parkway

A mid-October sunrise on Price Lake located at MP 297 on the Blue Ridge Parkway near Blowing Rock. The brilliant colors of fall, a misty fog blanketing the lake and a colorful and mystic sky all produce a beautiful blend.

(Canon 5DIII mm 17–40 mm f/4 lens at 21mm, ISO 100, f/16, 1 second exposure, Gitzo tripod with Kirk bullhead)

WILD LANDSCAPES **SECOND PLACE**

Sharon Canter, High Point
Atlantic Ocean, Cape Hatteras

On a blustery January morning with winds gusting between 23 and 33 miles per hour, my husband and I drove to The Point at Hatteras on the Outer Banks. Two major Atlantic Ocean currents (Labrador and Florida currents) collide just off Cape Hatteras, and the mixing of the warm and cold currents along with the winter winds often create turbulent water. I enjoyed anticipating and photographing the collision of the waves for quite a while on that morning.

(Nikon D300s, Nikkor 18–200mm lens, ISO 500, f/16, 1/400 of a second)

WILD LANDSCAPES **THIRD PLACE**

Cindy Yount, Morehead City
Barden Inlet, Shackleford Banks

This unique perspective of the east end of Shackleford Banks was shot during an airplane excursion; courtesy of my husband for an anniversary gift. The Banks, lovingly known as "Shack" to the locals, is home to a herd of feral horses. The wild horses, along with the beautiful water and white sand are local attractions that attract tourists from all over our state. Shackleford Banks is part of the Cape Lookout National Seashore.

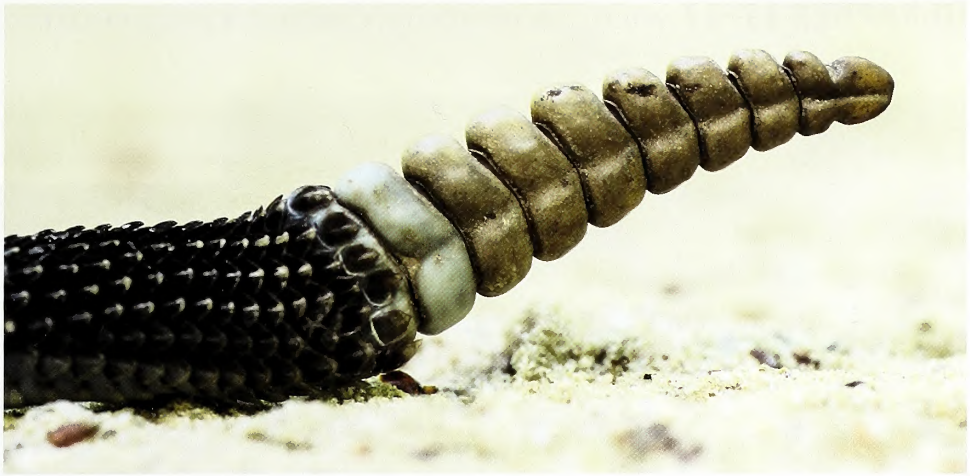
(Nikon D7000; 35mm lens, ISO 100, f/5.6, 1/125 of a second)

ANIMAL BEHAVIOR **FIRST PLACE**

Kim Hawks, Chapel Hill
Turtle tracks, Bald Head Island

I've always wanted to see baby turtles hatching and running to the sea. I was at Bald Head Island doing a weekend photography workshop with David Blevins. It was summer solstice. The Bald Head Island Conservancy folks were monitoring turtle activity. I was hopeful. We showed up at the beach in the dark, shortly before sunrise. David found the tracks. I was in amazement. What big feet they have! I never saw a turtle, but this made my day.

(Canon EOS 50D, 16mm focal length, ISO 400, f/19, 1 second exposure)



ANIMAL BEHAVIOR
SECOND PLACE

Stephen Atkins, Weaverville
Tail of timber rattlesnake, Dupont State Forest

When going to visit friend and naturalist Steve O'Neil from Earthshine Nature Programs in Brevard to track two timber rattlesnakes he has been studying and monitoring with radio transmitters for the past few years, he called me before I made it to Earthshine. "Hey, I just got a call from a neighbor who found a black rattlesnake in his barn, do you want to help me rescue it before someone cuts its head off?" "Of course!" I replied. Some rattlesnakes, I would even say most that I have met, are very calm, docile creatures that thankfully are equipped with a nice alarm system to let you know if they feel you have gotten too close. (I wish bees had rattles!) This guy was no exception, he didn't even buzz his rattle until we disturbed him with the snake hook to get him into the locking bucket.

(Nikon D800, Sigma 150 2.8 macro lens, ISO 200, f/6.3, 1/400 of a second, manual exposure, manual focus)

ANIMAL BEHAVIOR
THIRD PLACE

Christopher Chao, Raleigh
Red-tailed hawk, Raleigh

On a winter morning, I went to Schenck Forest to photograph birds. I was totally surprised by this red-tailed hawk which flew in out of nowhere to grab its prey, all within 20 feet of where I was standing. It then flew to a fence post which allowed me a brief window of time to set up and capture this photo.

(Canon 5D Mark III, Canon 800mm L, ISO 1250, f/5.6, 1/800 of a second, Manfrotto monopod)

YOUTH PHOTOGRAPHER 13–17
FIRST PLACE

Lucas Bobay, Holly Springs
Jumping spider, Holly Springs

Jumping spiders are one of my favorite photography subjects, but they are also among the most challenging. I decided to try my luck in my backyard and after a few minutes' search I found a spider. A slight breeze and its nonstop activity made focusing difficult, but eventually I managed to get a sharp image.

(Canon EOS 7D, Canon 100mm f/2.8 Macro Lens, ISO 320, f/9, 1/160 of a second, Manual Mode, built-in flash)

YOUTH PHOTOGRAPHER 13–17
SECOND PLACE

Jacob Thomas, Waxhaw
Honeybee, Waxhaw

I am always in search of images that reflect the day-to-day things we take for granted. At the time I came across this bee I was struck by the irony of how the bee was focused on working, and how I was only enjoying a favorite past time of mine while trying to get out of my own work. After snapping this photograph I was amazed by the clarity of the image and the vividness of the color.

(Nikon D5200, Nikon VR 55–300mm at 170mm, ISO 200, f/6.3, 1/640 of a second)

YOUTH PHOTOGRAPHER 13–17
THIRD PLACE

Morgan Latham, Apex
Great spangled fritillary, Surry County

"This picture was taken on our family's farm in Surry County," said Lee Latham, father of Morgan. Every August the field thistle bushes bloom and attract thousands of butterflies. Morgan, 14, spent the morning taking hundreds of pictures but this is the only one she was able to capture with this unique orange butterfly. Morgan says she "really likes the color contrast between the orange butterfly, the purple flower and the green background."

(Nikon D7100, Nikon AF-S 70–200 f/2.8 ED VR II at 200mm, ISO 400, f/8, 1/250 of a second)

YOUTH PHOTOGRAPHER 13–17
HONORABLE MENTION

Stefan Romeo, Statesville
Cape Hatteras Fishing Pier, Frisco

While walking along the Frisco beach from Cape Hatteras, the sun was just starting to set over the horizon. By the time I got to the pier, the sun was just over the horizon so I quickly set up my tripod and captured this three-second exposure of the abandoned and dilapidated Frisco pier with the sun just over the horizon on the notoriously windy and sandy Cape Hatteras National Seashore.

(Nikon D3100, Nikkor 18–55mm at 18mm, ISO 200, f/9, three-second exposure)

YOUTH PHOTOGRAPHER 13–17
HONORABLE MENTION

Kendall Wiggins, Gibsonville
Eastern screech owl, Huntersville

Last April, I had the chance to photograph raptors at the Carolina Raptor Center in Huntersville. Throughout my day there, I saw eagles, falcons and hawks up-close, but owls quickly became my favorite subjects. This is Akai, an Eastern screech owl under the permanent care of the Carolina Raptor Center. Despite his small size, he can screech loudly, making the name of his species accurate. As I crept closer to Akai, he stared back at me inquisitively. In this photograph, his squinted eyes make him appear skeptical. Animals can seemingly show emotion through their facial expressions just as humans can!

(Olympus SP600UZ, 75mm, ISO 400, F/5.4, 1/125 of a second)

YOUTH PHOTOGRAPHER 13–17
HONORABLE MENTION

Lucas Bobay, Holly Springs
Red-tailed hawk, Raleigh

Early one morning in December, I drove out to Schenck Forest for some birding. I had just stepped out of my car when this red-tailed hawk landed in a tree above me. I pulled out my camera, figuring I would snap a few quick shots and move on. Much to my surprise, this hawk flew down onto a fencepost just feet from where I was standing. It was so close I had to step back to get the entire bird in the frame!

(Canon EOS 7D, Canon 400mm f/5.6 lens, ISO 500, f/5.6, 1/1,600 of a second, Manual Mode)

YOUTH PHOTOGRAPHER 12 & UNDER
FIRST PLACE

Darci Burger, Macon
Fowler's toad, Lake Gaston

One morning, I went out on the boardwalk that leads to the lake. It had just rained that night. As I was looking down I saw a tiny frog sitting on the wet boardwalk. I went back inside to get my sister to take a picture, but she was too tired and so she let me use her camera. I went back out and got to the frog's ground level and took a picture.

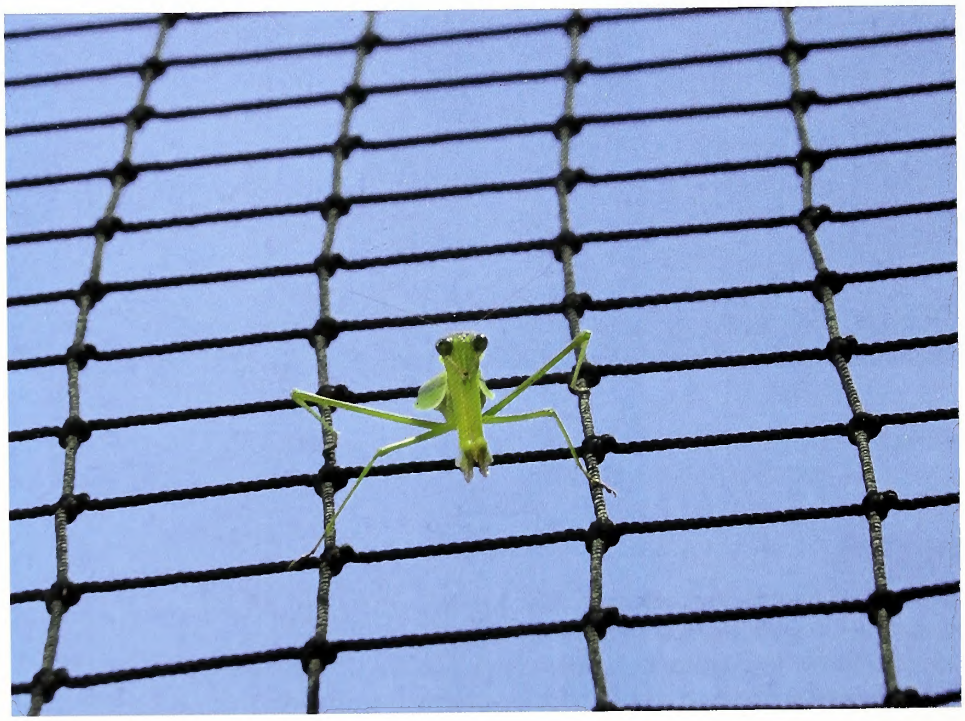
(Canon EOS RebelT2i, Canon 55–250mm lens, ISO: 2000, f/6.3, 1/400 of a second)

YOUTH PHOTOGRAPHER 12 & UNDER
SECOND PLACE

Brooke Schaffer, Clemmons
Mushroom, Clemmons

Most people would not want mushrooms in their yard but it actually made for a great photo opportunity for me. Before I got my camera under the mushroom I was just taking pictures of the top of the mushroom. Then I thought to get on my hands and knees and turn my lens upward inside the mushroom. That day was really sunny so I am guessing that is the reason for my picture being bright and also my camera is blue so the blue in my picture I believe was a reflection from on my camera.

(Canon Power Shot A2300, 5mm, ISO 400, f/2.8, 1/50 of a second, No flash, Auto)



YOUTH PHOTOGRAPHER 12 & UNDER
THIRD PLACE

Gavin Mortenson, Summerfield
Praying mantis, Greensboro

I got the picture of the praying mantis at the Greensboro Grasshoppers stadium (Newbridge Bank Park) on the net behind the fence. We have season tickets and I often sit waiting for home-run balls. I sometimes turn around to take in the surroundings or take pictures of the Marriott or something flying in the sky. I walked over to the net and looked up. The praying mantis scared me a little bit because I looked up expecting to see a bird of some sort: there was the praying mantis about 5 feet away. I already had my camera out and I snapped the picture.

(Canon SX50 HS, 46mm, ISO 1,600, f/15.6, 1/15 of a second)

YOUTH PHOTOGRAPHER 12 & UNDER
HONORABLE MENTION

Emma Halstead, Walkertown
Honeybee, Walkertown

I enjoy photographing wildlife around our house and entering photography competitions. It is a honeybee that was collecting a lot of pollen in the flowerbeds. I took this photo with my mother's Nikon D3100.

(Nikon D3100, Nikkor 85mm, ISO 800, f/7.1, 1/800 of a second)

YOUTH PHOTOGRAPHER 12 & UNDER
HONORABLE MENTION

Kristen Forney, Raleigh
Cope's gray tree frog, Raleigh

This frog I found one bright and sunny day in one of our outbuildings on a lid. Because the lighting in the building was not good enough for a picture, I picked up the lid and brought it outside. He posed for me staring right at the camera for about five minutes. I love how he had his toes spread out in front of him and in back so I could capture the whole body. I ended up getting several good pictures of him before he hopped off. I am so happy that it won honorable mention!

(Canon PowerShot SX130 IS, 5–60 mm zoom at 6.4mm, ISO: 80, f/3.5, 1/60 of a second)

YOUTH PHOTOGRAPHER 12 & UNDER
HONORABLE MENTION

Addison Latham, Apex
American robin, Apex

This robin family built a nest outside a window on the second floor of our home. Addison's dad built a makeshift blind using a bed sheet with a small hole to stick the lens through so as not to disturb the nest. Over the course of several weeks, Addison took literally thousands of images as she learned how to use her dad's camera. Feeding times were Addison's favorite, and she was fortunate to capture this picture of an adult arriving with a big meal for its hungry babies.

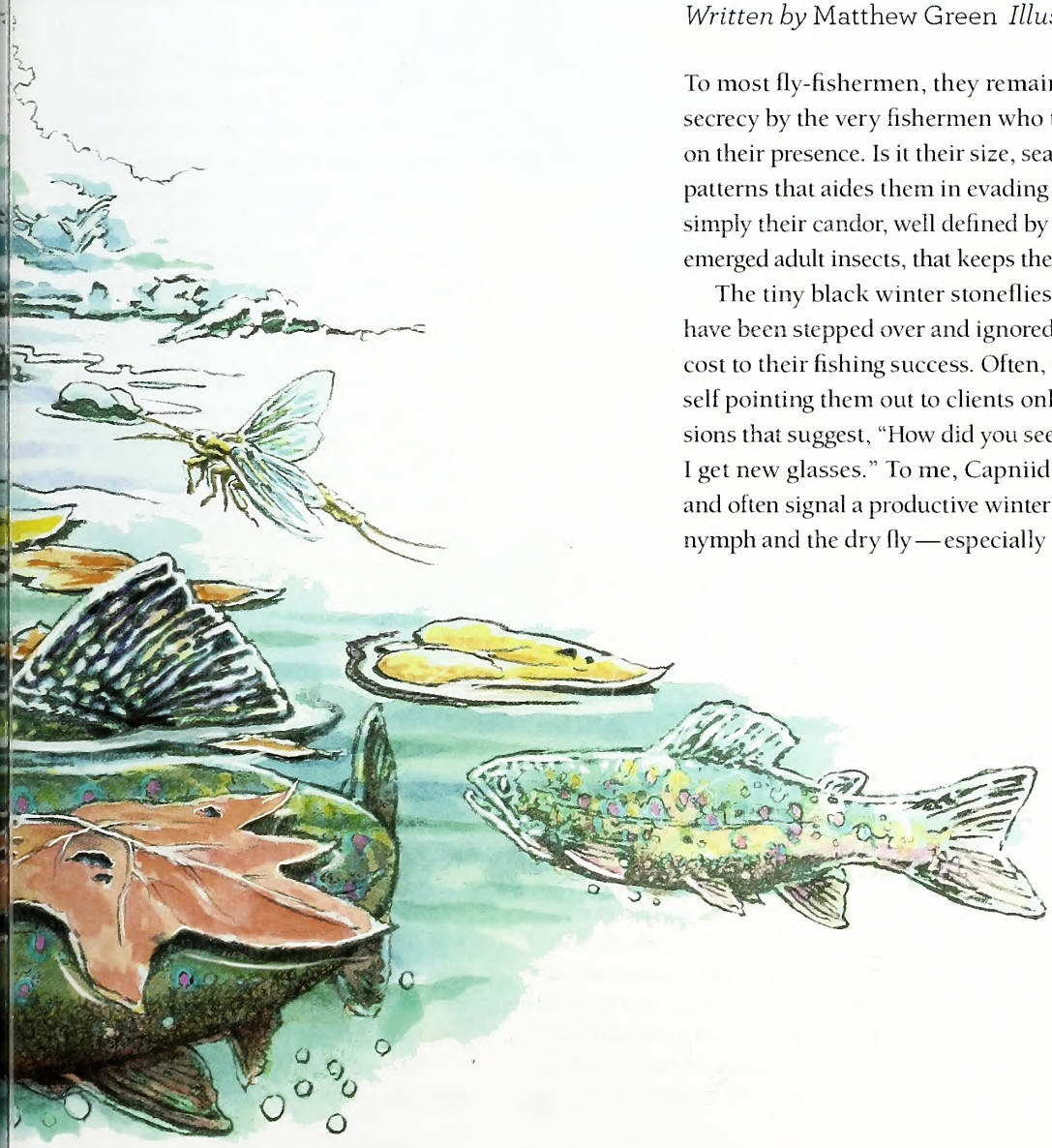
(Nikon D7000, Nikon AF-S 70–200mm f/2.8 ED VR II with TC-17E at 240mm, ISO 200, f/5, 1/160 of a second)

The Tiny Black WINTER STONEFLY: *Capniidae*

Written by Matthew Green *Illustrated by* Jim Brown

To most fly-fishermen, they remain a mystery, cloaked in secrecy by the very fishermen who take notice and capitalize on their presence. Is it their size, seasonality or lethargic flight patterns that aides them in evading the average angler, or is it simply their candor, well defined by their innocence as newly emerged adult insects, that keeps their identity inconspicuous?

The tiny black winter stoneflies are aquatic insects that have been stepped over and ignored by most anglers at great cost to their fishing success. Often, while guiding, I find myself pointing them out to clients only to receive facial expressions that suggest, "How did you see that?" or "It's about time I get new glasses." To me, Capniids are little bundles of joy, and often signal a productive winter fishing day both with the nymph and the dry fly—especially the dry fly.



Capniids can signal a productive day of winter fishing with both the nymph and dry fly, but particularly with the dry fly.

MELISSA McGAW / NCWRC

Historical angling literature makes little reference to the Capniidae, having favored more popular families of insects in the orders Ephemeroptera and Trichoptera. Certainly there are few traditional Smoky Mountain fly patterns that satisfy the Capniid's requirements for an acceptable imitation. In "Fly Pattern Guide to the Smoky Mountains," Roger Lowe lists two reasonable imitations for the tiny black winter stonefly, the Dark Winter Stone and the Thunderhead, the latter he credits Fred Hall of Bryson City with the imitation. However, most historically local patterns failed to reach mainstream fly-fishermen because the insects they imitated lacked broad appeal to emerging commercial fly-tying companies of the time. Only in the modern era of angling culture has the significance of Capniidae begun to garner the attention of the larger fly-fishing community. Within the last decade, the increasing popularity of the sport has established a renewed interest in winter fly-fishing, especially among younger anglers. Even so, modern angling literature boasts few articles regarding the insect's morphology, and there is very little relating the insect's biology to proper fly-fishing technique.

In light of this resurgence, many fly-fishermen still remain dubious of the tiny black winter stonefly's presence and its significance to the winter diets of trout. Therefore, it is imperative that anglers seek to understand the insect's morphology, biology, development and emergence behavior so that they can achieve greater fishing success on cold, bitter days.

CLASSIFICATION, COLORATION & MORPHOLOGY OF CAPNIIDAE

The Capniidae, or the tiny black winter stoneflies, are primitive insects in the order Plecoptera and belong to one the oldest lineages of winged insects. The phylogenetic relationships between Plecopteran families are relatively clear. Most modern phylogenies place the closely related Nemouridae as sister to both the Capniidae and Leuctridae stoneflies. These three univoltine (producing one generation per year) families of Plecoptera represent the winter stoneflies of the North Carolina mountains. The first of these families to emerge are the Leuctridae (late September to early November, although a few species emerge March–May) followed by the Capniidae (early November to late January) and then the Nemouridae (mid-February to late March).

In our southern mountains, there is a distinct relationship between the abundance of a specific winter stonefly family and stream order—the relative size of streams. It is apparent to me that larger freestone rivers contain more robust populations of Nemouridae and that medium-sized freestone rivers and larger streams contain more robust populations of Capniidae. Also, the headwaters of each of these medium and larger rivers seem more conducive to abundant populations of Leuctridae. Thus, if the angler can be an accurate judge of stream order, he can approximate the possibility of encountering Nemouridae, Capniidae and Leuctridae by assessing the size and elevation of the stream he's fishing.

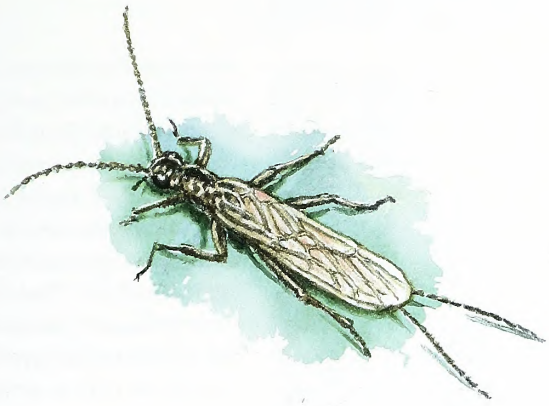
Given the possibility for overlapping adult emergence in the winter stoneflies, anglers should learn to identify the nymphs and adults of Leuctridae and Nemouridae in order to distinguish them from the more winter abundant Capniidae.

The nymphs of the Nemouridae, or the early spring stoneflies, have cervical gills that resemble a ventral collar beneath the insect's head. This identifying character is not found on the nymphs of Leuctridae and Capniidae and is special to Nemouridae. The adults of Nemouridae look incredibly similar to those of the Capniidae. However, it is important to note that Nemourid adults are often 1.5–2 times the size of adult Capniids and average 24 millimeters in length. Most of the Nemouridae that anglers will encounter in North Carolina have mottled gray wings with black stains and spots. This is a very distinct coloration that easily distinguishes Nemouridae from Capniidae.

The nymphs of Leuctridae are perhaps the most similar to Capniidae than any of

CAPNIIDAE MALE

The wings of the male adult appear dwarfed and cover about only half of the abdomen. The cerci, sensory appendages, extend well past the tips of the wings, approximately 8–10 mm in length. Adults emerge in November and can last well into January.



CAPNIIDAE FEMALE

The most obvious difference when compared to the male is that the wings extend along the entire abdomen. Approximately the same size as adult males. In both sexes, the antennae are dark and prominent. The wings are colored light gray.

CAPNIIDAE NYMPH

Late instar nymphs are colored tan or light pinkish-white and average about 12 mm in length. Note the two sets of wing pads. Early instar nymphs feed on detritus and dead organic material and undergo rapid development when water temperatures cool in September.

TOM MURRAY

TOM MURRAY

Described by some anglers as "ice crawlers," adult Capniids (top photo) are approximately 8–10 mm long, smaller than the nymphs (bottom photo).

the other Plecopteran families. The nymphs of the Leuctridae, or the rollwing stoneflies, have a lateral pleural fold along their abdomens that extends from abdominal segments 1–7. In the nymphs of Capniidae, this fold spans the entire length of the abdomen running laterally along abdominal segments 1–9. This characteristic is the most prominent identifier used to separate the nymphs of Leuctridae and Capniidae. The adults of Leuctridae have brown wings that curl underneath their abdomens and often hide their cerci. As the wings curl underneath the abdomen, they make the stonefly appear skinny and needlelike. This morphological feature is a key component in separating adult Leuctrids from adult Capniids. In addition to this character, the wing venation of Capniidae is fairly simple, with only 1 or 2 inter-cubital anal crossveins. In contrast, the wing venation of Leuctridae is much more complex and consists of four or more inter-cubital anal crossveins. Sight identifying Leuctridae by counting the number of inter-cubital anal crossveins on the insect's forewing should aid you in determining whether or not it is Capniidae.

The late instar nymphs of Capniidae are usually tan or light pinkish-white colored, average 12 mm in length, have two sets of robust parallel wing pads, and have two 6–8 mm long cerci. When imitating the Capniid nymph with the fly, I generally use a size 18-16 nymph hook, 8/0 Lt. Cahill UNI-Thread, wrapped tan turkey biot for the abdomen, orange dyed quill body for the cerci, tan or off white dyed goose quill for the wing pads, and light orange ring-neck pheasant feathers for the legs.

...THE ANGLER'S DECISION OF WHAT INSECT TO IMITATE AND WHAT COLOR AND SIZE TO USE MUST ACCURATELY REFLECT THE CURRENT BIOAVAILABILITY OF THAT INSECT TO TROUT

Described by some southern anglers as "ice crawlers," Capniid adults are brown or black in coloration and are generally smaller than nymphs, measuring 8–10 mm in length. It is important to note that females often have wings that cover the entire abdomen as compared to males whose wings are apterous or shortened and do not cover the entire abdomen. Instead, the wings of adult males appear dwarfed and often leave half of the abdomen wingless. Cerci on the adults of both sexes generally extend past the tip of the wings. Adults have prominent, darkened antennae and their wings are light grey with simple venation that lacks multiple inter-cubital anal crossveins.

When imitating the adults I use a size 20 dry fly hook, 8/0 Iron Gray UNI-Thread for the abdomen and the head, 8/0 Camel UNI-Thread for the abdominal ribbing, black dyed quill body for the cerci and antennae, grey or white goose quill for the wing, and black palmered hackle tied in behind the head and in front of the wing to ensure that the fly floats. Roger Lowe's adult Capniidae pattern also contains black palmered hackle behind the head of the fly. Floating Capniidae often scurry and attempt to scramble to safety when they accidentally fall onto the water's surface. Although the natural insects are very buoyant, their erratic behavior causes them to move violently on the water leading to rapid, pulsing current drifting and premature drowning. Palmered hackle placed behind the head achieves this desired, natural locomotion by allowing the fly to zip along the water's surface and dip and dive into the surface film sporadically. Trout key in on this natural movement, and if the imitation mimics it the angler can be deadly with the fly when Capniid activity on the water is high.

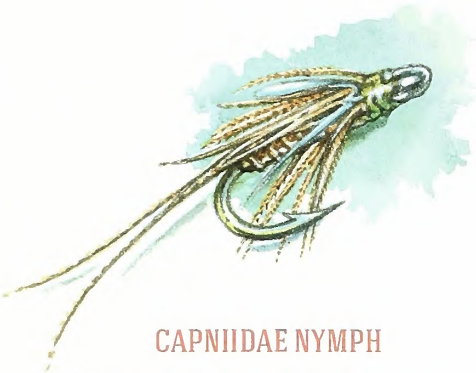
The most abundant and widespread genus of Capniidae in eastern North America is Allocapnia. Anglers may encounter the genera Capnia, Capnura, Nemocapnia and Paracapnia throughout the eastern United States, but are most likely to come across Allocapnia in the mountains of western North Carolina. It is not uncommon to come across multiple species of Allocapnia during a typical winter fishing day, especially in high biodiversity areas such as the Great Smoky Mountains National Park where several species of Allocapnia remain endemic to streams originating within the park's boundaries.

CAPNIIDAE HABITAT AS A FUNCTION OF DEVELOPMENT

It is not surprising to me that most anglers I come in contact with are unaware of the true coloration of the Capniidae nymph. I find that most anglers use a dark brown or black nymph instead of a light tan nymph to imitate the mid to late developmental stages of the insect. Although a darker colored nymph will certainly catch trout during the winter by imitating a mid instar golden stonefly (Perlidae) or a developing mayfly within the genus Maccaffertium, doing so is certainly less efficient when considering the abundance of lighter colored stoneflies occupying the benthos.

Thus, the angler's decision of what insect to imitate and what color and size to use must accurately reflect the current bioavailability of that insect to trout. If the insect is not available to trout as a food resource, then it is not currently bioavailable. Limitations to prey bioavailability include non-overlapping habitats and non-overlapping life histories and developmental cycles. For example, early instar Capniid stoneflies live in an area of the stream called the hyporheos where an active exchange of groundwater and upstream river water occurs underneath rocks and sandy substrata. Life history studies of the Capniidae have found that early instar Capniids feed on detritus and dead organic material underneath the stream's rocky substrata and undergo an accelerated development as water temperatures begin to cool in late September and early October. For this reason, early instar nymphs of Capniidae should not be attempted or fished in the early fall, as they are not bioavailable to trout during this time period. It is not efficient nor is it intelligent to fish Capniid nymphs during the early fall. To achieve greater fishing success, begin fishing Capniid nymphs in late October and continue to fish them throughout the month of January.

Prior to emerging, Capniids migrate out of the hyporheic regions of the stream and congregate in leaf packs close to the stream's banks. I have witnessed, at times, thousands of Capniids in leaf packs along stream edges and in debris trapped by exposed rocks and substrata within the stream itself. During this period, I fish Capniid nymphs in shallow riffles and runs where nymphs have congregated to feed on leaf packs and obtain dissolved oxygen. Capniidae



CAPNIIDAE NYMPH

The nymph can be imitated with a size 16 or 18 hook, 8/0 Lt. Cahill UNI-Thread, wrapped tan turkey biot for the abdomen, orange dyed quill body for the cerci, tan or off white dyed goose quill for the wing pads, and light orange ring-necked pheasant feathers for the legs.

CAPNIIDAE ADULT FEMALE

The adults of both sexes can be imitated with a size 20 dry fly hook, 8/0 Iron Gray UNI-Thread for the abdomen and head, 8/0 Camel UNI-Thread for abdominal ribbing, black dyed quill body for cerci and antennae, gray or white goose quill for wing and black palmered hackle tied in behind the head.

CAPNIIDAE ADULT MALE

Palmered hackle placed behind the head achieves imitation of natural insect locomotion by allowing the fly to zip along the water's surface and dip and dive into the surface film sporadically. Trout key in on this natural locomotion.

Flies tied by Matt Green

nymphs lack gills, and it is has been postulated by Dr. Bill Stark (Mississippi College) and other Plecoptera experts that their small size yields a high surface area to volume ratio which allows sufficient oxygen to pass through their cuticle from their highly oxygenated cold-water habitats. Most stoneflies are cryophilic — especially Capniidae — and demand cold, clean well-oxygenated water for survival. As such, the riffles and runs of mountain rivers satisfy the habitat needs of Capniid nymphs, and anglers should target these stream sections with the nymph where trout have congregated to feed.

CAPNIIDAE EMERGENCE & FLY FISHING TECHNIQUE

In my experience, the first Capniids to emerge usually grace streamside vegetation and boulders as early as the first weekend in November and can last well into the month of January. There are two indicator emergences that anglers can use to estimate the current stage of the Capniid emergence. Early season Capniid emergences will be accompanied by yellow craneflies, especially those in the genus Antocha, while emergences occurring later in the season are often complemented by the winter caddisfly Dolophilodes.

As Capniids emerge from their exuvia close to midday, they craw onto rocks or woody debris on dry land to seek refuge before trying to find a mate. It is important then to fish late instar nymphal imitations of Capniidae along the sides of rocks and exposed substrata. A technique that I have found useful for imitating Capniid nymphal emergence involves raising the rod tip in the air and lightly jigging the fly along the sides of streamside boulders in two second intervals. As the nymphs begin to emerge, they point their head and thorax toward the river's surface and twitch their long, skinny abdomens to swim towards boulders and exposed substrata. To capture this swimming behavior, I attach a 1-inch piece of 6X fluorocarbon tippet and one No. 8 splitshot to the hook bend of the nymph. This modification allows the nymph to rise head-first with a tightline jig. Keep in mind that the head of the fly remains unweighted and has to remain unweighted for the technique to work. If the angler is to add weight, the weight added to the hook bend must be greater than the weight added to the head or the leader.

After emerging and crawling onto exposed substrata, most Capniids remain near or in close proximity to the location of their emergence. I have noted large abundances (occasionally in the thousands) of Capniids on the diagonal edges of boulders that are angled toward the stream. I do not think that Capniids aggregate on sloping rock faces because they represent ideal adult resting habitat. Rather, I believe this observation is evidence for Capniid immobility in that the adults have moved very little distance post emergence. Capniids are poor flyers, and moderate winds blow them easily onto the river's surface. The insects could use rock faces to reduce their exposure to strong winds, but it is more plausible to assume that they are simply immobile and gentle by nature. If one is to hold an adult Capniid in his hand, you will find that it takes some coaxing to encourage the insect to fly away. It is if the insect dislikes flying entirely. This observation is important for the fly-fisherman, for if the insect is to fall from the aggregation and to the surface of the stream, it is more likely to act like it is in distress than to fly away. Capniids could aggregate to reduce water loss. A reduction in the amount of space not occupied by a single Capniid could increase the likelihood that water is retained by the aggregation as a whole. However, Capniids are just as likely to aggregate to increase the chance of finding a mate and to generate heat, which are evolutionary adaptations to winter life history completion.

Capniids are noted for their ability to survive very cold air temperatures as adults, and therefore can be found walking on snow or ice next to streams. After finding a mate, female Capniids return to the water to lay their eggs. I have noticed that this event usually occurs after 4 p.m. and

Trout, such as this brookie, tend to sip Capniids from the surface. Delicate presentations with drag-free drifts and long leaders are required to prevent spooking the fish.

RICHARD BERNABE

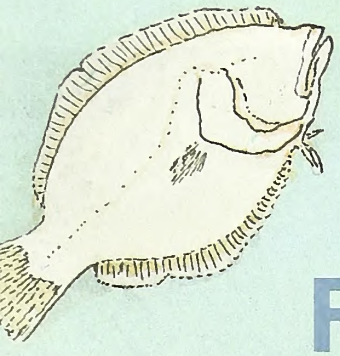
AFTER EMERGING AND CRAWLING ONTO EXPOSED SUBSTRATA, MOST CAPNIIDS REMAIN NEAR OR IN CLOSE PROXIMITY TO THE LOCATION OF THEIR EMERGENCE

that females do not bias where they lay their eggs (i.e., they are just as likely to lay their eggs in a riffle as they are in a pool). Capniids have a very brief life span as an adult. Although I have been able to keep adults alive for up to nine days in captivity, I have seen female adults returning to the water in as little as 36 hours.

When the females return to the water to lay their eggs the best dry-fly fishing of the emergence occurs. Instead of waiting to sip wind-blown adults off the water's surface, trout receive a bulky evening meal and rise with increasing regularity. Trout rise to Capniid adults with a distinctive rise form, sipping them off of the surface in a similar manner to how they sip midges. Therefore, delicate presentations with drag free drifts and long leaders are required to prevent spooking these relaxed trout. I have often compared this feeding behavior to trout feeding on the mayfly Tricorythodes in Pennsylvania spring creeks. I can see no difference in how native brook trout feed on Capniidae on the Watauga River and in how wild rainbow trout feed on trico mayfly imagos (spinners) on Falling Spring Branch in Chambersburg, Pa. Trout sipping on Capniidae are calm and collected, feeding so regularly during a female egg laying event that it appears part of a daily routine. Despite this, the confidence that the trout exudes should demand the same level of confidence from the angler with regard to technique. Do not be stymied by the trout's ability to discern his food wisely. The trout's confidence is a desert mirage that wanes after he is fooled by the angler's fly.

By introducing the Capniidae emergence to their winter fly-fishing repertoire, anglers have the rare opportunity to fish and pioneer what is still regarded by many older fishermen as a virgin emergence. Winter aquatic insect emergences make up a significant portion of the last frontier of fly-fishing innovation on freestone rivers. Be a part of the revolution while you can.

Matt Green is a graduate of North Carolina State University. His past research with aquatic insects has led him to pursue fly fishing opportunities across the entire east coast. Having developed a love affair with mayflies, he has become a connoisseur of great Eastern emergences, particularly on spring creeks and tailwater rivers wherever he can find them.



Think flatfish are boring? Think again! Once you know these North Carolina natives, you'll be glad they're

Floundering Around

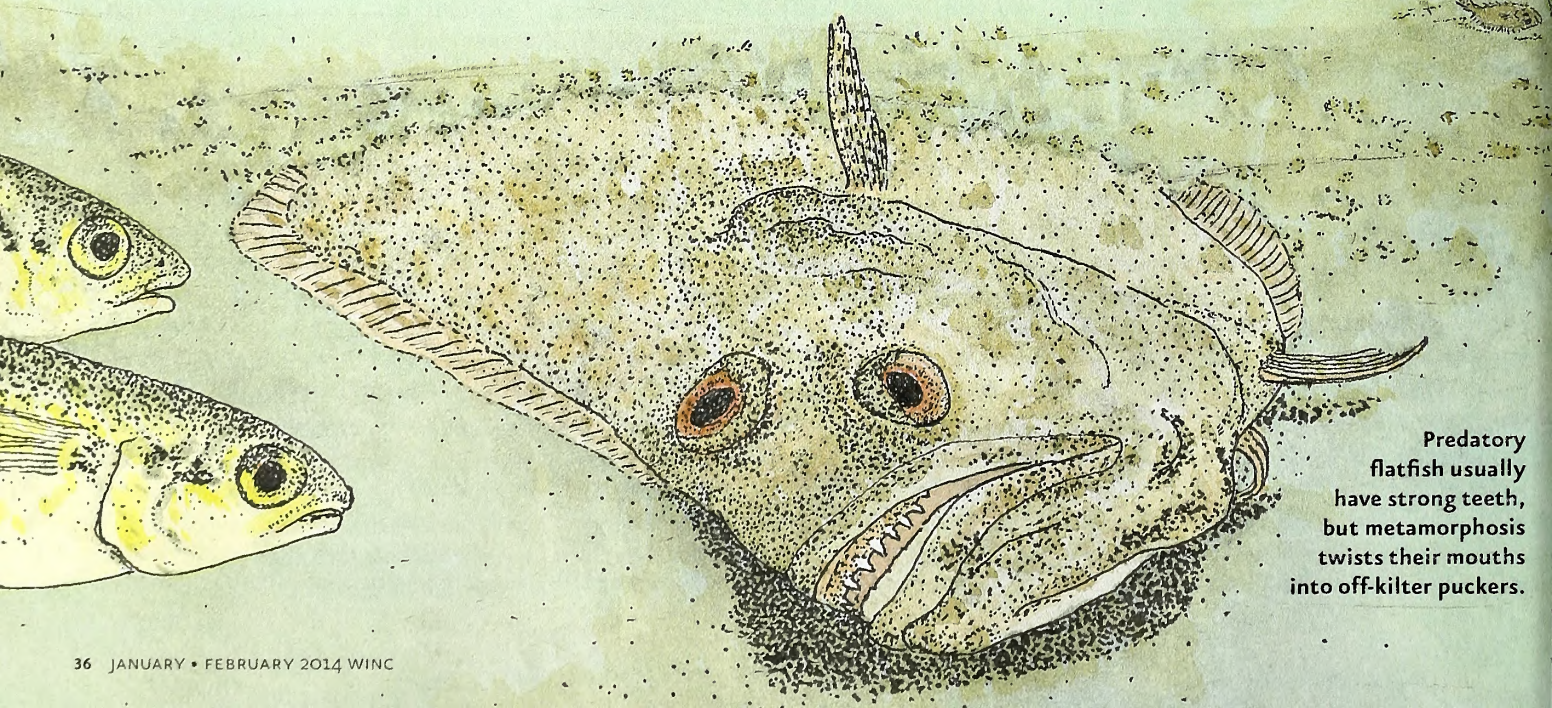
written by Julie Dunlap / illustrations and nature activity by Anne M. Runyon

They can't swim fast like marlins or leap waterfalls like salmon, but flounders have exciting traits and talents of their own.

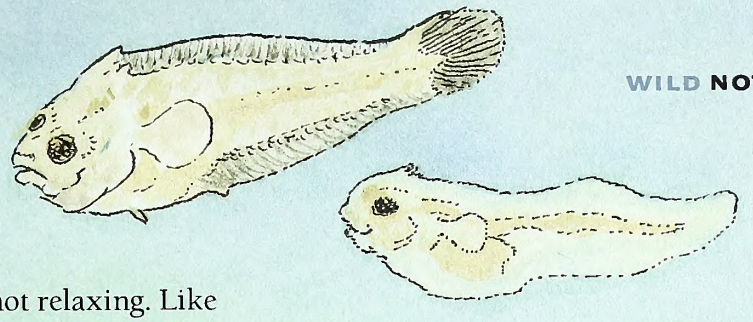
BIG FLAT FAMILIES

Bottom-dwelling finfish, flounders and other flatfish range in size from record-breaking quarter-ton halibut to pygmy whiffs smaller than smartphones. The flatfishes' scientific name hints at their strange body shape; *Pleuronectiformes* comes from Greek words meaning "side swimming." Unlike football-shaped tuna or bass, all 600-plus flatfish look more like Frisbees and swim with one side of their body—left or right, depending on the species—always up, and the other side down. Much of the time they're not swimming at all, but lying flat on the sea floor. Yet their downside eye isn't stuck in the muck—both eyes on flatfish peer from the topside of their pancaked bodies.

Flounder is the common name for about half of the flatfish. In North Carolina, six of nine common flatfish are called flounder. Not a close-knit group, flounders belong to several different families but may look as much alike as cousins or even siblings. Many are neighbors, too, with overlapping ranges around the world's oceans. Our Southern and Gulf flounders can both be found from the Chesapeake Bay to the Gulf of Mexico. Summer flounders, North Carolina's most abundant species, thrive along our Atlantic Coast from Maine to Florida. But to make things more confusing, summer flounders in different places are known as fluke, plaice or chicken halibut. It's simpler just to think of flounder as tops among bottom fish.



Predatory flatfish usually have strong teeth, but metamorphosis twists their mouths into off-kilter puckers.



As larvae float with the currents, translucent bodies make them hard for predators to see.

LYING IN WAIT

Flounders on the sea floor are not relaxing. Like lions on the Serengeti, the fish are ambush predators. On warm spring nights, Southern flounder may gather near a tidal marsh. Strong fins send silt flying, covering their bodies until only their eyes peer out. Impressions in the sand where they hide are called beds, but no one is asleep. At last the tide turns and shrimp, seaworms and small fish flow out of wetland. With a swift flick of their powerful tails, flounders burst from cover and grab midnight snacks with sharp teeth.

Flounders have one hunting talent a lion pride would envy. Though their lower halves stay pale or pure white, their upper halves can change colors and patterns to match their surroundings. They can turn dark brown when lying on mud, pale tan on sand, and spotted—in multi-colors—on pebbled surfaces. Such masterful disguises have earned them the nickname "chameleons of the sea." But they cannot hide from every enemy all the time. Sharks or harbor seals can snatch a swimming flounder, and ospreys can snag one off the bottom.

ROVING EYEBALLS

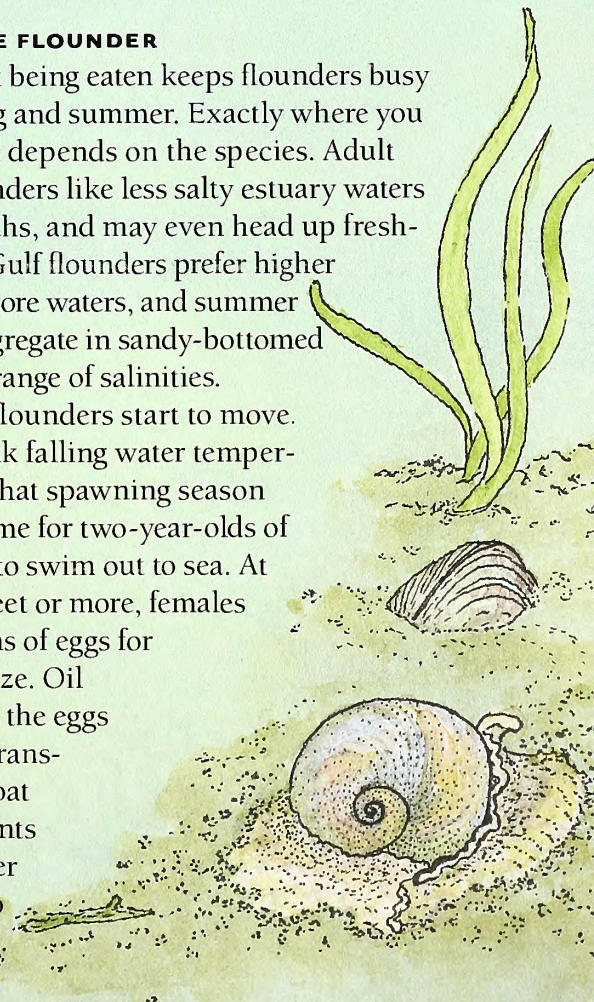
Just after hatching, flounders look like other baby fish. Each tiny larva swims upright and sports an eye on each side of its head. But soon an amazing transformation begins. One eye begins to move. In summer flounders and other so-called "left-eyed" species, the right eye travels over the top of the head to the left side. The opposite happens in "right-eyed" flatfish such as hogchokers. By the time the fish is about 1/2 inch long, the metamorphosis is complete. For the rest of its life, the animal is asymmetrical and blind on the bottom side.

Most larvae hatched in the ocean end up in the mouths of whales, fish and other zooplankton-eaters. But by early spring, survivors find shelter near seagrass beds, in salt marshes and on shallow tidal flats along the Outer Banks and other coastal nurseries. Around the time of metamorphosis, juveniles sink to the bottom like proper flatfish. Already, inch-long mini-flounders are fierce predators, devouring crustaceans and other creatures even smaller than they are, and eating more and more fish as they grow. Only a lucky few live to adulthood and take their turn in the annual migration to make more side swimmers.

MAKING MORE FLOUNDER

Eating and not being eaten keeps flounders busy through spring and summer. Exactly where you will find them depends on the species. Adult southern flounders like less salty estuary waters in warm months, and may even head up freshwater creeks. Gulf flounders prefer higher salinity nearshore waters, and summer flounders congregate in sandy-bottomed waters with a range of salinities.

Come fall, flounders start to move. Scientists think falling water temperatures signal that spawning season has arrived; time for two-year-olds of many species to swim out to sea. At depths of 50 feet or more, females release millions of eggs for males to fertilize. Oil droplets make the eggs buoyant; the transparent balls float with the currents as tiny flounder larvae begin to develop inside.

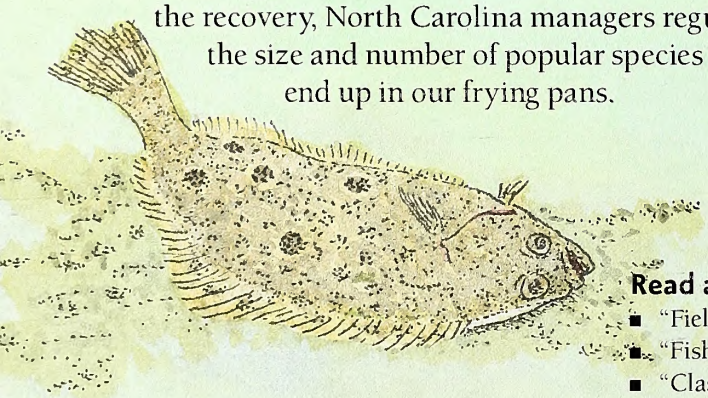


Dolphins sometimes catch flounders in their beaks and toss them back and forth like a fishy Frisbee.

FLOUNDERS FOR THE FUTURE

Ask some people the exciting thing about flounders, and they'll say, "Fillets!" Delicate white meat tempts sport and commercial fishermen to harvest thousands of tons every year. In the 1980s, overfishing was blamed for a crash in some flounder populations. But the 1996 Sustainable Fisheries Act and other laws have helped many fish stocks, including summer flounder, to rebuild. To encourage the recovery, North Carolina managers regulate the size and number of popular species that end up in our frying pans.

Flounders face many threats besides overfishing. Scientists are just beginning to understand the many types of habitat that different species need from egg to adulthood and throughout the seasons all year. Yet pollution, loss of seagrasses, wetland development, dredging and low oxygen dead zones all degrade the places flounders need to live. In North Carolina and all the world's oceans, habitat protection is the key if we want to keep these incredible flatfish around for the future.



Thank you to Dr. Harvey Walsh, Research Fishery Biologist, NOAA Fisheries, Narragansett Laboratory, for expert assistance with this article.

Get Outside

Get hooked on flounders. Some animals are just too cool not to see for yourself. If you like to fish, bait a hook and drop a line from a dock in a mud- or sand-bottomed bay where hungry flounders like to hang out. Or try a net to scoop up juvenile flatfish from the sand or mud near a saltmarsh. Get a close-up view of its protruding eyes, twisted mouth, and sideways body. Even fins may be shifted compared with other fish. How do all of these changes make your fish more fit for the life it leads? Then, look around you. What do you notice about the fish's natural environment? Does it look healthy and clean? What can people like you do to make sure flounders will always be around?

Read and Find Out

- "Field Guide to Fishes" by Carter Gilbert and James Williams, Knopf, 2002.
- "Fish" by Steve Parker, DK Publishing, 2005.
- "Classifying Fish" by Richard Spilsbury and Louise Spilsbury, Heinemann, 2009.

In *Wildlife in North Carolina:*

- "King of the Bottom Fish" by Joel Arrington, August 2000.

On the Internet:

- "Marine Communities" exhibit at North Carolina Aquarium at Roanoke Island, outerbanks.com/ncaquarium/
- North Carolina Recreational Coastal Waters Guide for Sports Fishermen, portal.ncdenr.org/web/mf/recreational-fishing-size-and-bag-limits
- Sustainable Seafood program of Blue Ocean Institute, blueocean.org/programs/sustainable-seafood-program/
- "Why are Flounder Funny Looking?" Science Blogs, scienceblogs.com/pharyngula/2006/07/31/why-are- flounder-funny-looking/
- "World's Wierdest: Flounder is Master of Disguise." video.nationalgeographic.com/video/animals/fish-animals/other-fish/weirdest-flounder/

Find out more about Project WILD Workshops and literature at the Wildlife Commission's website at ncwildlife.org.

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Make a Fish Print...Catch, Print and then Cook Your Flounder!

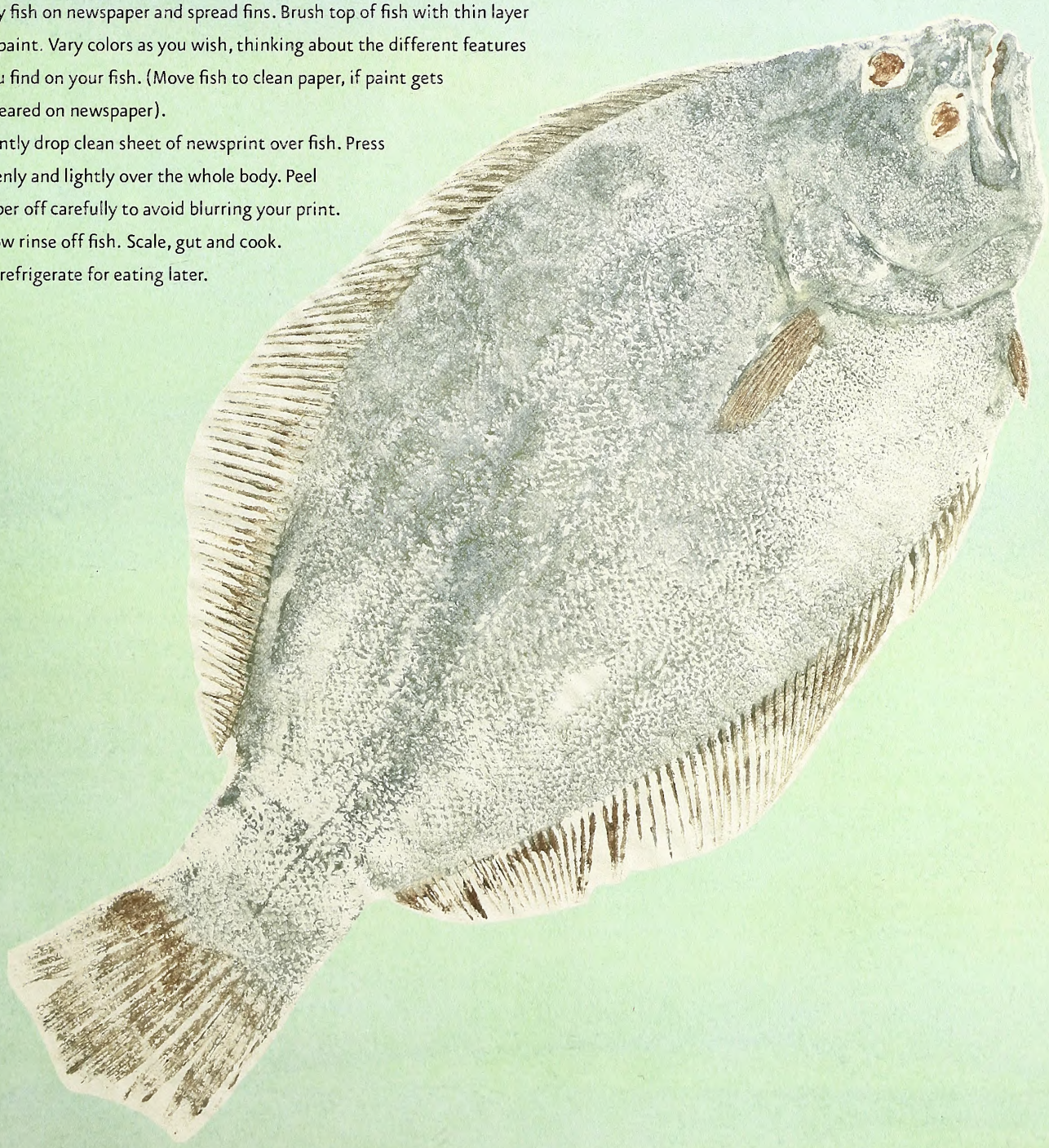
This simple technique is based on the Japanese art of Gyotaku (guh-yo-tah-koo). You will need to set out a newspaper, some water-based, non-toxic paints, brushes, and print paper (newsprint works well) before you take your fish out of the cooler.

1) Wash your whole fresh flounder with soap and water to remove the body slime. Pat dry.

2) Lay fish on newspaper and spread fins. Brush top of fish with thin layer of paint. Vary colors as you wish, thinking about the different features you find on your fish. (Move fish to clean paper, if paint gets smeared on newspaper).

3) Gently drop clean sheet of newsprint over fish. Press evenly and lightly over the whole body. Peel paper off carefully to avoid blurring your print.

4) Now rinse off fish. Scale, gut and cook. Or refrigerate for eating later.



Wildlife Federation Honors Commission, Officer

MELISSA McGAW / NCWRC

A covert investigation and a wildlife officer working undercover garnered prestigious conservation honors for the N.C. Wildlife Resources Commission.

The N.C. Wildlife Federation named Sgt. Chad Arnold with the commission's Special Investigations Unit as Wildlife Enforcement Officer of the Year, while the commission was named Natural Resources Agency of the Year for its participation in Operation Something Bruin—a multi-agency infiltration into bear poaching circles that led to multiple arrests in North Carolina and Georgia. Arnold played a major role during the four-year undercover operation.

The honors came earlier this year at the annual Governor's Conservation Achievement Awards banquet in Cary. The ceremony recognizes those who have an unwavering commitment to conservation and an uncommon determination to safeguard the state's natural resources. By publicizing and honoring these conservation leaders—young and old, professional and volunteer—the Wildlife Federation hopes to inspire everyone to take a more active role in protecting natural resources.

"I must acknowledge the teamwork behind Operation Something Bruin and recognize those who contributed to its success," said Col. Dale Caveny, chief of the Division of Law Enforcement, who accepted on behalf of Arnold and the Wildlife Commission. "The cohesive efforts of the U.S. Forest Service, the U.S. Fish and Wildlife Service and the National Park Service on the federal level; and the Georgia Department of Natural Resources and Tennessee Wildlife Resources Agency at the state level, made this investigation work. Here at home, I have to thank North Carolina's wildlife commissioners for their personal support and the entire Wildlife Commission, especially the Division of Wildlife Management, for their assistance. And I would be remiss if I didn't thank the sportsmen and public."

In addition to honoring Arnold and the Wildlife Commission, the Wildlife Federation also named Wildlife Commission Chairman Jim Cogdell as Business Conservationist of the Year for his Fork Farm & Stables, in Norwood, which is a world-class working farm and equestrian center that balances crop production with native ecosystems, and manages acreage for wildlife. Fork Farm & Stables also provides hands-on learning for youth and sportsmen.

Also recognized was the Pitt County Wildlife Club, of Greenville, as the Hunter Safety Education Organization of the Year. This organization has 19 active hunter safety instructors and three master instructors—all working with the commission's Hunter Education Program.

"Volunteer instructors are the core of hunter education and hunting safety," said Travis Casper, the Hunter Education Program coordinator. "Groups like the Pitt County Wildlife Club provide needed volunteers; along with the support those volunteers need to get this important work done."

e NEWSLETTER

Get N.C. Wildlife Update—news including season dates, bag limits, legislative updates and more—delivered to your Inbox from the N.C. Wildlife Resources Commission. Sign up at ncwildlife.org/enews.

New Boating Access at Hyco Lake

The N.C. Wildlife Resources Commission completed work on the Hyco After Bay Boating Access Area in October and it is open to the public.

The boating access area is located on the Hyco After Bay, which is the reservoir below the Hyco Lake dam in Person County. Duke Energy, which owns the After Bay and surrounding land, uses the reservoir to help meet water quality and temperature standards prior to release into the Hyco River.

NCWRC

The area has one launch ramp and a floating, universally accessible pier. It has nine trailer parking spaces and one universally accessible trailer space. Wildlife Commission staff also paved the parking lot and access road leading to the boating access area.

The new site is the first official boating access area constructed by the commission on the After Bay, although boaters have been accessing it for years via an old road bed.

"The Hyco After Bay has been a popular fishing and waterfowl hunting spot for years," said Mark Hamlett, Design Service Section chief for the commission. "We were notified by the public that there was a need for a more formal boating access area, and so we partnered with Duke Energy, which provided us with the property we needed to build the area. This gives the public a boating access area that is safe, free and open 24 hours a day, seven days a week."

Construction of the site was funded with motorboat registration fees and Sport Fish Restoration Program funds.

For more information on boating in North Carolina, including the locations of more than 200 free, publicly accessible boating access areas, visit the commission's locater map at ncwildlife.org/boating.

January 2014 Public Hearings Schedule

Proposed changes in wildlife and fisheries management rules will be discussed. Please note that last year the public hearings were held in September. All hearing times are 7 p.m.

DATE	DISTRICT	CITY	LOCATION
Jan. 7, 2014	4	Dublin	Bladen Community College
Jan. 8, 2014	5	Graham	Courthouse
Jan. 9, 2014	6	Norwood	South Stanly High School
Jan. 14, 2014	9	Murphy	Tri-County Community College
Jan. 15, 2014	8	Newton	1924 Courthouse
Jan. 16, 2014	7	Wilkesboro	The Walker Center, Wilkes Community College
Jan. 21, 2014	1	Edenton	Swain Auditorium
Jan. 22, 2014	2	New Bern	Courthouse
Jan. 23, 2014	3	Rocky Mount	Nash Community College

IN SEASON

In January and February, these seasons are open in North Carolina:

Black Bear: Through Jan. 1 (see *Regulations Digest* for locations).

Bobcat: Through Feb. 28.

Brant: Through Jan. 25.

Canada Goose and White-Fronted Goose: Resident Population Zone through Feb. 8; Northeast Hunt Zone (permit only) Jan. 10–Jan. 25.

Common Snipe: Through Feb. 28.

Crow: Through Feb. 28.

Ducks, Coot and Mergansers: Through Jan. 25.

Sea Ducks (In special sea duck area only): Through Jan. 31

Fox: See *Regulations Digest* for seasons and locations.

Hatchery Supported Trout Waters: Through Feb. 28.

Light Geese (Snow, Blue and Ross'): Through March 8.

Mourning Dove: Through Jan. 11.

Pheasant: Through Feb. 1.

Quail: Through Feb. 28.

Rabbit: Through Feb. 28.

Raccoon and Opossum: Through Feb. 28.

Ruffed Grouse: Through Feb. 28.

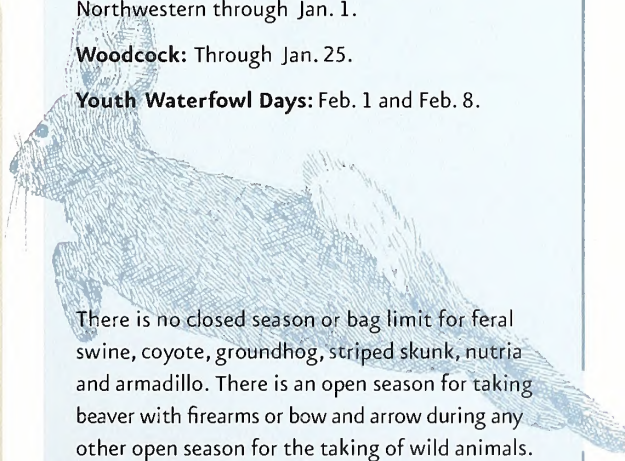
Squirrel: Gray and red through Feb. 28.

Tundra Swan: Through Jan. 31, by permit only.

White-Tailed Deer: Eastern, Central and Northwestern through Jan. 1.

Woodcock: Through Jan. 25.

Youth Waterfowl Days: Feb. 1 and Feb. 8.



There is no closed season or bag limit for feral swine, coyote, groundhog, striped skunk, nutria and armadillo. There is an open season for taking beaver with firearms or bow and arrow during any other open season for the taking of wild animals.

Check the latest *North Carolina Inland Fishing, Hunting and Trapping Regulations Digest* for bag limits and applicable maps or visit ncwildlife.org.

CALENDAR OF EVENTS

Friday–Sunday, Jan. 10–12

It may be cold outside, but that's no reason to stay home. Head out to the 24th Bass & Saltwater Fishing Expo at the State Fair Grounds in Raleigh. The Jim Graham Building and the Exposition Center will have marine dealers, tackle dealers and there will be a full slate of seminars from professional anglers and guides. Plenty of interactive stuff for kids. Go to ncboatshows.com for more information.

Tuesday, Jan. 21

Did the Hunger Games make you want to learn archery? There's a class for adults (16 and older) at the Education Center on Centennial Campus in Raleigh where you can learn the history and the art of the bow. Go to ncwildlife.org/Learning/CoursesSeminarsWorkshops.aspx to learn more and register.

Friday–Saturday, Feb. 7–8

The Fly Fishing Show, part of a national series of events, returns to Winston-Salem. Enjoy seminars, casting exhibitions, well-known authors, fly-tiers and equipment vendors. The event opens at 9 a.m. each day. Visit flyfishingshow.com for additional information.

Saturday–Sunday, Feb. 8–9

The 19th Annual East Carolina Wildlife Arts and Decoy Carving Festival is slated for Washington. The new Duck Stamp winner will be announced and there is plenty of wildlife art for sale along with duck calling and decoy carving competitions. Bring some spending money. Visit ecwguild.com for more information.

Thursday, Feb. 27

Adults (16 and up) are invited to the Education Center on the Centennial Campus for Outdoor Sports Safety. The class will concentrate on gun safety, safety on the water and general safety in the outdoors, including some exposure to wilderness first aid. Go to ncwildlife.org/Learning/CoursesSeminarsWorkshops.aspx to learn more and register.

Readers should check with the contact listed before traveling to an event. Items for listing should be conservation-oriented and should be submitted at least four months in advance to mike.zlotnicki@ncwildlife.org, or call 919-707-0175.

Check Off to Help Wildlife

NORTH CAROLINA NONGAME & ENDANGERED WILDLIFE FUND

Tax Day may be three months away, but some folks get them done early and the N.C. Wildlife Resources Commission would like taxpayers to remember North Carolina wildlife this year when completing their state income tax form by making a donation. Because donations can be matched with federal and other grants, the Wildlife Commission can double your donations. For example, if you make a $50 donation, it can allow the Commission to access $50 in matching grant money, resulting in nongame and endangered wildlife in North Carolina benefiting from $100 of support.

Online tax preparation software, such as TurboTax, does not have numbered lines, so e-filers will be asked if they would like to make a donation to the Nongame and Endangered Wildlife Fund. Other tax filers can also tell their tax preparer they would like to donate.

Whether you love to hunt, fish, photograph wildlife, or watch birds in your backyard, you can help conserve the state's wildlife and their habitats.

More than 1,000 nongame species — from sea turtles to songbirds — call the Tar Heel state home. Many species, such as gray tree frogs and Eastern towhees, are common and can be found and heard in your backyard. Others, such as sea turtles, Northern flying squirrels and red-cockaded woodpeckers, are endangered and need conservation to prevent them from disappearing entirely from our state's landscape.

MELISSA McGAW/NCWRC

Northern flying squirrel

North Carolina's income tax donations have helped fund success stories, such as peregrine falcons and bald eagles, which were once endangered but now soar high in our skies.

The Nongame and Endangered Wildlife Fund's tax check-off donations made on the state income tax form provide the largest and most significant source of non-federal funding for conservation projects to help these species. Every dollar of tax check-off donations the Commission receives goes to the fund, where it matches federal and other grants, or is used to pay for educational activities and wildlife-watching projects like the North Carolina Birding Trail.

Dixie Deer Classic Coming

Mark your calendars Feb. 28–March 2 for the 34th Annual Dixie Deer Classic. It's a big event, sponsored by the Wake County Wildlife Club and spread out over 175,000 square feet of indoors and numerous outdoor exhibits. The event is a family-oriented event with kids 13–18 admitted for half price ($5) and under 13 free. Folks over 65 and military get in for $5 as well. Kids can participate in fun face painting, BB gun turkey shoot, Archery Alley and watch retriever demonstrations. Dorton Arena will once again be a gun sales venue, but the public cannot bring firearms into the building for show or trade.

A paid entry means you can bring a shoulder mount or rack mount to Exposition Center to be scored by the Boone and Crockett system.

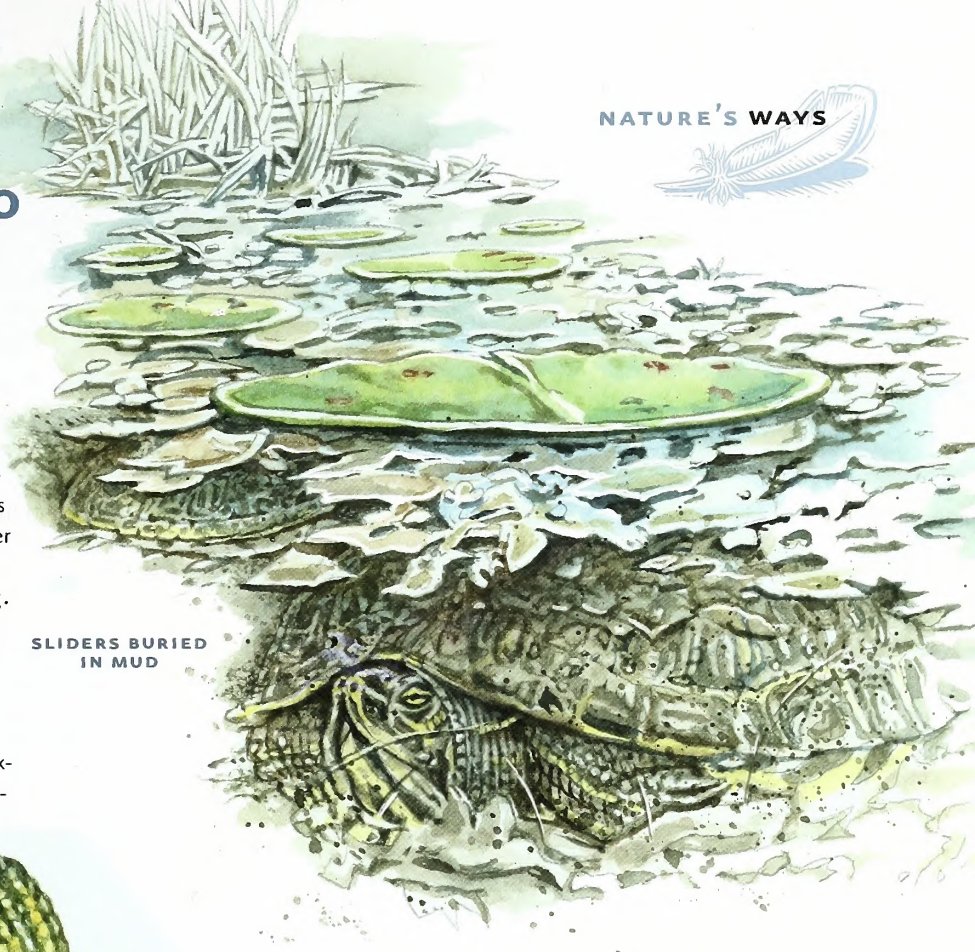
Celebrity seminars will include Lee & Tiffany, C.J. Winand and Joe Teti.

The Jim Graham Building will feature exhibitors from many areas of hunting and also the seminars. The "new" Exposition Center will again house the "bragging boards" from deer scored at the DDC and also special mount exhibitions. There are plenty of waterfowl- and turkey-hunting vendors and seminars as well. Go to dixiedeerclassic.org for details.

Where Do Turtles Go In The Winter?

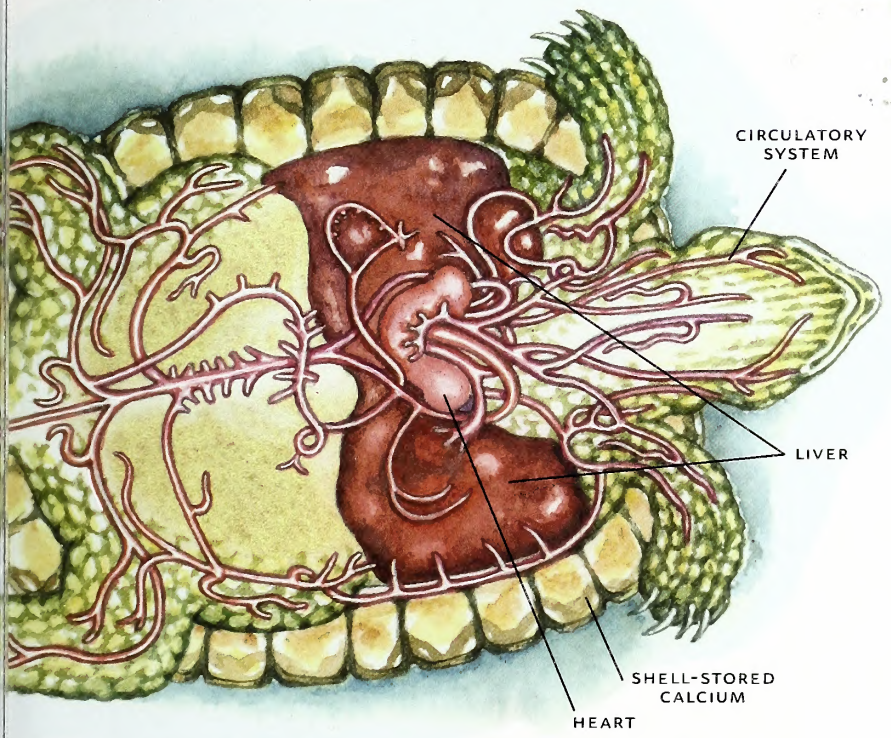
written by Clyde Sorenson
illustrated by Jim Brown

AIR-BREATHING, AQUATIC TURTLES like sliders and painted turtles seem to vanish when the weather turns cold. They haven't usually gone far, though, when the water temperature drops. They simply go to the bottom of the pond, where they may stay for weeks without surfacing. They have a number of adaptations that allow them to weather the frigid temperatures.



SLIDERS BURIED IN MUD

Turtles retreat to the bottom of the pond because, in the depths of winter, this is where the warmest (relatively speaking) water is. Water is densest at 39°F and sinks to the bottom of the pond at this temperature.



The biggest asset the turtle has is a really slow metabolism that consumes very little energy. Like most other reptiles, turtles are ectotherms – their body temperature is dictated largely by the temperature of the surrounding environment. The turtle's already slow metabolism drops precipitously when the water approaches freezing, since chemical reactions, and therefore biological processes, slow as temperatures drop. The heart of a 39° turtle only beats five or six times an hour.

North Carolina turtles have an advantage over those living farther north, where ponds freeze for the winter; on mild, sunny days in the middle of the winter, they can return to the surface of the pond, gather some heat from the sun, and clear some of the metabolic waste from their time on the pond bottom.

The turtle socks away large quantities of chemical energy in the form of glycogen in its liver. This provides the energy to fuel its slowed down metabolism. Glycogen is an extremely energy-dense sugar polymer.

Metabolizing glycogen without oxygen (since the turtle isn't breathing there on the bottom of the pond) produces large quantities of lactic acid, the chemical that causes your muscles to burn when you exercise heavily. Lactic acid is toxic, but turtles can tolerate much higher concentrations in their blood and tissue than most other animals. They also mobilize some of the calcium in their shells to buffer the lactic acid, allowing them to safely store even more.

BASKING TURTLE

Hunting the Atlantic Rim

written by Jim Dean

Hunters and fishermen have historically visited the Outer Banks and Sea Islands along the Atlantic Coast to hunt waterfowl and fish the surf or inshore waters, but there are other sporting opportunities on these barrier islands—particularly for hunters—that draw little attention.

JIM DEAN

The most successful rabbit hunts I ever enjoyed were on some of these islands. I've also hunted ring-necked pheasants that had adapted to life at our beaches (having originally been imported to this continent from Asia), and once I took part in a memorable Sea Island bobwhite quail hunt. In the low marshes behind the islands, friends and I have hunted clapper rails with good success. White-tailed deer were abundant on many of these barrier islands in my youth, but most maritime forests are now full of cottages.

Many of the islands I hunted have long been overwhelmed by recreational and commercial development, but not all of them. Also, the national seashore has protected and preserved 300 miles of coastal habitat in North Carolina where some of these species might still be found and legally hunted.

"Little about these sandy dunes and marshes would remind anyone of bobwhite quail habitat, but there are a few coveys on some of our barrier islands."

Marsh rabbits (not the Eastern cottontail, but their smaller, blue-tailed cousins) still inhabit some barrier islands. In the 1970s, we hunted them with beagles convoyed by boats to Figure Eight and Masonboro islands (the pack split up to chase multiple rabbits running every which way). It was a lot of fun, but getting those beagles to leave paradise and get back into a boat was a chore. Also, these islands are covered with cactus, and we had to remove some spines (leather booties might have helped). Figure Eight Island is now a fully developed resort, but those who take the time to find undeveloped islands where hunting is legal and allowed may still find marsh rabbits to chase.

Surely, the ring-necked pheasant is the most unusual game species found on the barrier islands. I know of no recent survey of their numbers, and their population tends to be cyclical, but there are still wild ringnecks here, particularly within the national seashore. Years ago, I found enough on Core Banks to make it interesting. It would have been more interesting if I had been a better wing shot.

Outer Banks pheasants are an exotic curiosity, and this population is also likely to be the southernmost in the country. Shortly after I came to work for the Wildlife Resources Commission in 1969, the agency made several unsuccessful attempts to introduce wild ringnecks to eastern North Carolina's vast fields and hopefully suitable habitat. Private shooting preserves still release pheasants. None survive for more than a few years, except on the barrier islands. Here, for reasons not entirely understood, they have been able to reproduce and survive. One biologist speculated that the ability to adapt to available food, a temperate climate and calcium in the beach sand might be factors, but he admitted these were only theories.

At any rate, it's legal to hunt them here in season, although it's doubtful that there are many hunters who have this option on their bucket list nowadays.

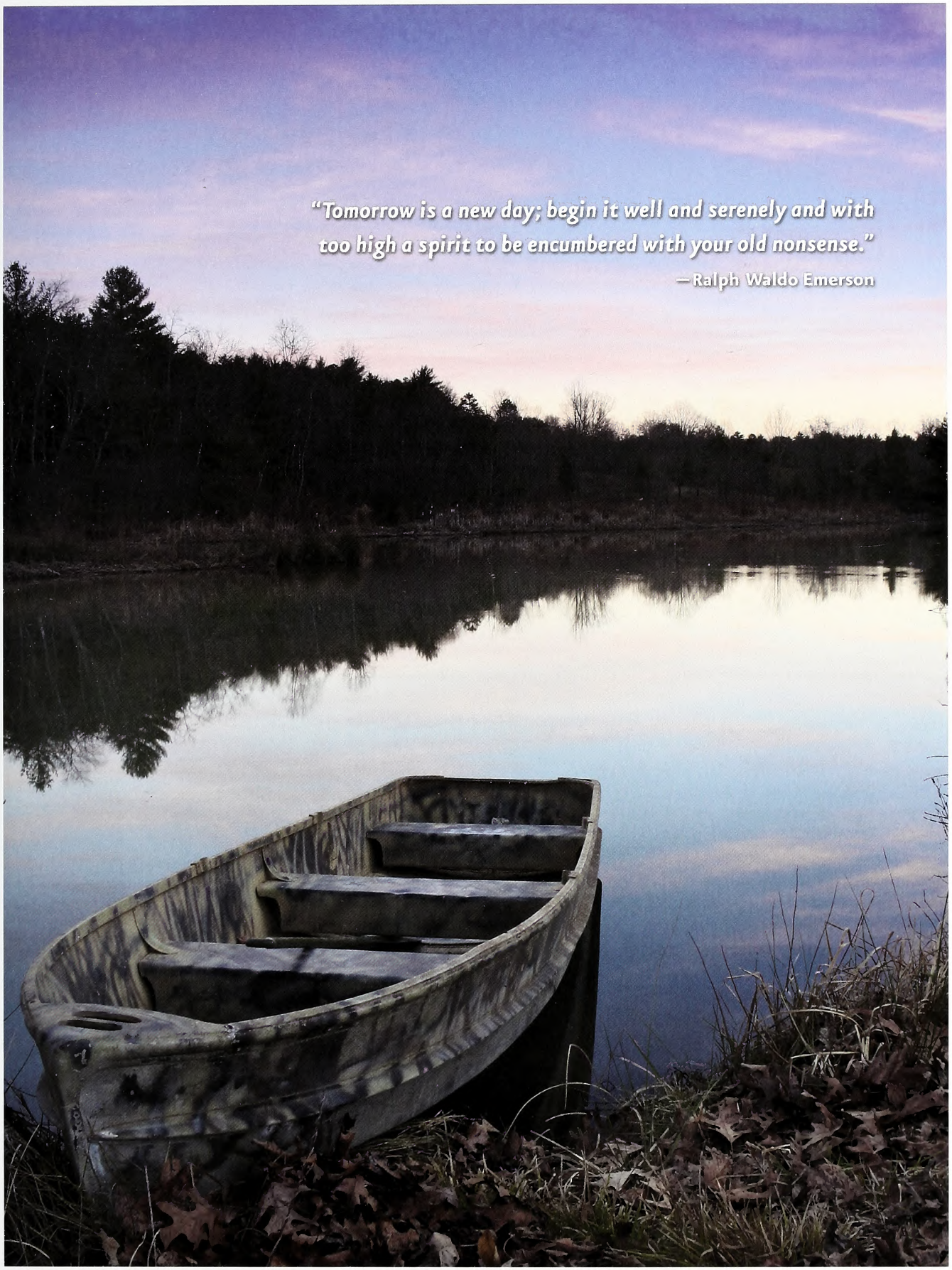
There are, however, still quite a few hunters who stalk clapper rails in the low marshes behind the barrier islands. Most wait for high tides during the season and pole small skiffs through the flooded marsh, flushing the rails and shooting them on the wing. Years ago, Calico Jack McCann showed me another tactic that worked well on low tide in the marshes behind Shackleford Banks. We'd follow Jack's black Lab across the drained and mostly firm marsh wearing tennis shoes, and it was fairly easy walking, though we'd get muddy to our waists. The Lab would occasionally flush a rail on the high marsh, but more often, the birds would run ahead of us until they reached a ditch or open water, then they'd flush.

Little about these sandy dunes and marshes would remind anyone of bobwhite quail habitat, but there are a few coveys on some of our barrier islands. I have never targeted bobwhites there, nor do I know anyone who has, but two years ago, my son Scott and I heard them whistling at Cape Lookout.

Farther south, Hilton Head Island in South Carolina was one of several coastal bobwhite hotspots in the 1960s. At that time, only one small hotel had been built there, and the island was rural with large fields of soybeans crisscrossed with dense hedgerows—classic bobwhite habitat.

We followed a brace of well-trained English pointers across the fields in wagons drawn by remarkably "musical" mules (if you catch my drift, or rather, theirs). The dogs would point a covey off in the distance, and hold the birds until we got there. Then, we would get out, flush the covey and take our shots.

I may never hunt beach bunnies and dune pheasants again, and that piece of Hilton Head's Old-South elegance is gone with the wind. But I won't forget those rare privileges.



ANDREW SHOOK

Moretz Lake / Alexander County

OUTDOOR MOMENT

IN THE MARCH · APRIL ISSUE

STEVEN COOPER

THE EAGLE HAS LANDED
In winter, a small, disjunct population of golden eagles that nests in eastern Canada finds a temporary home in the Appalachian Mountains.

TRIBUTARY SMALLMOUTH
Don't have a boat? No problem. There are numerous opportunities to fish for smallmouth in the smaller tributaries of major rivers in the mountains.

GOBBLE, GOBBLE
Turkey hunters can teach a fellow many things, including persistence and how to count to three properly.

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